A DISSERTATION ON

"CLINICO – PATHOLOGICAL STUDY ON ORAL MALIGNANCY IN RGGGH"

Dissertation is submitted to

THE TAMIL NADU DR.M.G.R.MEDICAL UNIVERISTY

CHENNAI

with partial fulfilment of the regulations for the Award of the degree

M.S. (General Surgery) Branch –I

At

INSTITUTE OF GENERAL SURGERY,

MADRAS MEDICAL COLLEGE,

CHENNAI-3

THE TAMILNADU DR.M.G.R.MEDICAL UNIVERISTY,

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MAY - 2018

CERTIFICATE

This is to certify that this dissertation titled **"CLINICO – PATHOLOGICAL STUDY ON ORAL MALIGNANCY IN RGGGH"** is the bonafide work done by **DR.SENTHIL.V,** Post Graduate Student (2015 - 2018) in the Institute of General Surgery, Madras Medical College, Chennai, under the direct guidance and supervision, and in partial full fillment of the regulations laid down by The Tamil Nadu Dr.M.G.R.Medical University, Chennai for M.S. (BranchI), General Surgery degree examination.

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DECLARATION

I, declare that this dissertation titled **"CLINICO-PATHOLOGICAL STUDY ON ORAL MALIGNANCY IN RGGGH "**represents a genuine work of mine. The contributions of any supervisors to the research are consistent with normal supervisory practice, and are acknowledged.

I also affirm that this bonafide work or part of this work was not submitted by me or any others for any award, degree or diploma to any other University board, either in India or abroad. This is submitted to The Tamil Nadu Dr.M.G.R Medical University, Chennai in partial fulfillment of the rules and regulations for the award of Master of Surgery Degree Branch-I (General Surgery).

Date:

Place: **DR.SENTHIL.V**

ACKNOWLEDGEMENT

I hereby wish to express my heartfelt gratitude to the following person without whose help this study would not have been possible. I thank the Dean **Prof. Dr.NARAYANA BABU,M.D.,DCH.,** for allowing me to conduct this study in Rajiv Gandhi Government General Hospital, Chennai.

My profound gratitude to **Prof. Dr.R.A.PANDYARAJ,M.S.,** professor and Director of the Institute of General Surgery for having guided me throughout the period of this work at Madras Medical College, Chennai.

My gratitude to my esteemed teacher and guide, **Prof. DR.S.BALAKRISHNAN, M.S.,** whose guidance and encouragement I will never forget. His precious advice, keen interest and suggestions from his vast experience have made this work possible. Words can hardly express my deep sense of gratitude, reverence and thankfulness for his invaluable guidance and inspiration, without which this work would not have been accomplished. I convey my special thanks to my assistants **Dr. M. SENTHILKUMAR, M.S, Dr. M. KUDIYARASU, M.S, Dr. P. PRABHAKAR, M.S,** their encouragement, valuable guidance and moral support throughout the course of this study.

I thank my parents**, Mr.C.VAITHIYANATHAN, Msc, Med, Mphil** and **Mrs. V. PARUVATHAVARTHNI** and my wife **Dr. D. SINTHIYA,** They have loved me, taught me, and natured me. To them I dedicate this work.

I sincerely thank my co post graduate and junior post graduate for their help and support. Last but not the least, I am also grateful to all the patients included in the present study, for their participation and cooperation without which my study would not have been possible.

Dr.SENTHIL.V

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CERTIFICATE OF APPROVAL

To
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Dear Dr.Senthil,

The Institutional Ethics Committee has considered your request and approved your study titled **"CLINICO PATHOLOGICAL STUDY ON ORAL MALIGNANCY IN RGGGH" - NO.23012017 (III).**

The following members of Ethics Committee were present in the meeting hold on **24.01.2017** conducted at Madras Medical College, Chennai 3

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12.Thiru S.Govindasamy, BA.,BL,High Court,Chennai	: Lawyer
13.Tmt.Arnold Saulina, MA.,MSW.,	:Social Scientist

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

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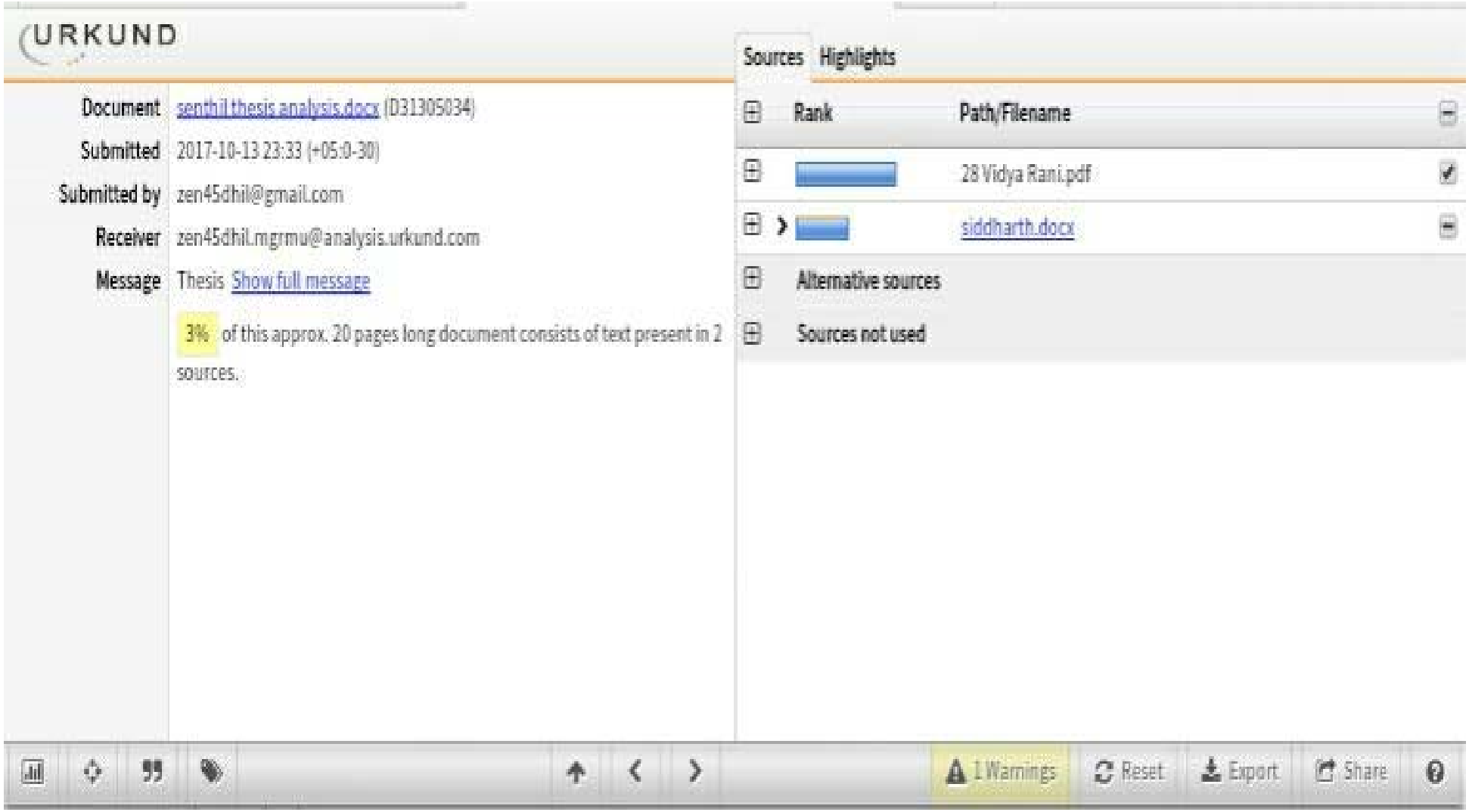
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This is to certify that this dissertation work titled "**CLINICO – PATHOLOGICAL STUDY ON ORAL MALIGNANCY IN RGGGH"** of the candidate **Dr.SENTHIL.V** with Registration number 221511013 for the award of **M.S** in the **Branch of GENERAL SURGERY.** I personally verified the urkund.com website for the purpose of plagiarism check. I found that the uploaded thesis file contains from introduction to conclusion pages and result shows 3% percentage of plagiarism in the dissertation

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CONTENTS

INTRODUCTION

INTRODUCTION

Oral malignancy is one of the commonest cancer in Asian countries and India (40%)

Incidence of oral cancer in India 28/1,00,000 population, commonest oral cancer in India is of buccal mucosa (more than 70%)

Incidence of oral cavity in India 1 million new cases/year and 1 lakh 24 thousand deaths/year

Incidence rate in men exceeded 30/1,00,000 world wide and 10/1,00,000 women in India

Combined abuse of alcohol and tobacco is not additive in terms of the odds ratio but multiplicative and the causative agent smoking, quid of chewing pan are important causes, tobacco, betel nut, alcohol, human papilloma virus (present in 80% of oral cancer and present in 40% of normal individuals) EB virus, vitamin A deficiency, plummer-vinson syndrome, bad dental hygiene, denture irritation – are etiologies

Risk of malignancy is 8 times in tobacco chewers and 10 times with quid users and 30 times with night quid users

Oral cavity in India it is common in cheek (50%), tongue (25%), floor (15%), palate and lips (10%), and in western countries most common is tongue

Leukoplakia (commonest), Erythroplakia, chronic hyperplastic candidiasis are pre cancerous conditions, oral lichen planus, discoid lupus, dyskeratosis congenita are doubtfully associated lesion, precancerous condition is one where there is increased risk of cancer

Most common malignancy of the oral cavity is squamous cell carcinoma and second most is minor salivary gland tumours

Surgical wide excision and radiotherapy are main modalities of treatment, chemotherapy is used as an adjuvant curative treatment in early growth with preservation of function like swallowing, speech, cosmetics but with adequate oncological clearance is the principle of surgical approach, radiotherapy is also used as curative therapy

AIMS AND OBJECTIVES

AIMS AND OBJECTIVES

1. To study various mode of presentation of oral malignancy

2. To study the causative role of addictive habits and their clinical outcome in patient with oral malignancy

3. To study the histological grade of malignancy and it's effect on the prognosis of the patient

Need for study :

Oral squamous cell carcinoma is the most common oral malignancy representing upto 80% to 90% of malignant of oral cavity

This shows geographical variation with respect to age, sex, site and habits of the population which in turn parallels longevity, multiplicity and intensity of carcinogenic exposure

The histopathologic grade of tumour is related to its biological behaviour

The main purpose of this study is to correlate all clinical parameters like gender, age, site, habit with different grade of squamous cell carcinoma and predict the tumour biology.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Majority of the cancer of the head and neck is represented by Squamous cell carcinoma accounting to about 95%.Hence the diagnosis and treatment of lesions in the head and neck including oral cavity require a systematic approach.

The American Joint Committee on Cancer (AJCC) staging system classified head and neck malignancies into six major groups:

1) lip and oral cavity,

2) pharynx,

3) larynx,

4) nasal cavity and paranasal sinuses,

5) major salivary glands,

6) thyroid.

The first WHO accepted classification for oral and oropharyngeal tumours was given in the year 1971 by Wahi P.N., Cohen B, Luthra V.K., and Torloni H.

The recent WHO classification of tumours of oral cavity was given in the year 2003 and it broadly classifies into the following types

- Malignant epithelial tumors
- Epithelial precursor lesions
- Benign epithelial tumors
- Salivary gland tumors
- Soft tissue tumors
- Hematolymphoid tumors

- Mucosal malignant lymphoma
- Secondary tumors

HISTORICAL REVIEW

- Ebers Papyres (1500 BC) – Eating ulcers of the gun.
- Pimpernelle – 1658 – First Hemiglossectomy for Benign lesion
- Marchetti – 1664 – Excision of the tumor in carcinoma tongue.
- F. Ruysch – 1734 – Traumatic genesis for Carcinoma tongue wasproposed
- Lorenz Heister – To obtain a cure it was necessary to remove margin of Normal tissue with the tumor.
- In Eighteenth century – German surgeons accepted glossectomy as
- the procedure of choice in treatment of cancer tongue
- Astley P.C. – 1914 – Intratracheal insufflations anesthesia for Excision of Entire tongue.
- Theoder Fricke – 1898 – Operation for cancer of the lip.
- A.B. Johnson & Joseph D. Bryant – Malgagnes operation for Carcinoma lip.
- Crile – 1906 – Described the Block dissection with removal of all Nodes and Lymph bearing areolar tissue.
- J.C. Stewart – 1910 – Radical operation must include removal of the tissue adjacent to the growth and associated Lymph Nodes.
- A.C. Broders – 1920 – of Mayo Clinic reported males and smokers are at higher risk when compared to Females and non smokers.
- George Brewer – 1923 – Incidence of Lower lip is more than upper lip.

Neck dissection

- Grant ward & Haynis Martin – 1940 – Commando's operation
- Performed in Memorial Hospital New york
- Mccammon and Shah – Radical Neck dissection.
- Boccas – 1960's – Modified Radical Neck dissection Type – 3
- Medina & Byres – Selective neck dissection (I–III)
- Khaiff – Selective neck dissection (II–IV)

- Weber – Selective neck dissection (VI)

Radiotherapy

- Henry Bequeral – 1897 – Discovered Radiation
- Pierre curie & Mary curie – 1898 – Discovered Radium.
- 1930 – Introduction of Brachytherapy
- 1950 – Teletherapy used with Cobalt 60
- 1980's – Supplementation with Megavoltage Radiotherapy
- IMRT (Intensity Modulated RT) Latest Concept.

Chemotherapy

- 1970's – Role of Adjuvant Chemotherapy Mccomb & Felteher
- Moore – 1980's – Combined Surgical & Radio therapy techniques

Reconstruction

- Karl Thiersch – 1874 – Free skin graft
- John Wolfe – 1875 – Full thickness graft
- 1960' – Regional flaps introduced
- Aryan – 1979 – Pectoralis Major Musculocutaneous flap.

Free Flaps

- In China – Radial Forearm flap
- Heyden & Miller – 1983 – Lateral Thigh flap

Molecular targeted therapies

Slaughter described field cancerization in the molecular Biology of oral cavity squamous cell carcinoma.

ANATOMY OF ORAL CAVITY

Oral cavity encompasses the area from the vermillion border of the lip to an Imaginary line drawn between Hard and Soft Palate, and the circumvallate Papillae Inferiorly.

Anatomical sites are included in the oral cavity.

1) Lip
2) Buccal mucosa
3) Upper & Lower alveolar ridge
4) Floor of Mouth
5) Anterior 2/3 of Tongue
6) Retromolar Trigone
7) Hard Palate.

Lip

Lips are composed of the orbicularis oris muscle with skin on the external surface and mucous membrane covers the internal surface.

Transition from skin to mucous membrane of the oral cavity is the lip vermillion.

Floor of Mouth

Floor of mouth is 'U' shaped area bounded by the Lower gum and oral tongue.

Terminates posteriorly at the insertion of anterior tonsillar pillar into the tongue.

Paired sublingual glands lies beneath the mucous membrane.

Whartons duct (Duct of Submandibular gland opens in the floor of mouth).

Tongue

Mobile Anterior 2/3 of tongue anterior to circumvallate papillae is considered as a part of oral cavity, posterior to circumvallate papillae is called as oropharynx.

Buccal Mucosa

Buccal mucosa is the mucous membrane covering the Inner surface of lips & cheek ending below and above with transition to the gingiva, and it ends posteriorly at the Retromolar Trigone.

Parotid duct opens into the buccal mucosa at the upper second Molar tooth.

Upper and Lower Alveolar Ridge

Upper alveolar ridge extends from buccal sulcus to Hard Palate and extends up to superior end of Pterigopalatine arch posteriorly.

Lower Alveolar ridge includes the Mucosa covering the Mandible from the gingivo buccal gutter to the origin of mobile mucosa in the floor of mouth.

Both include the mucosal covering of the alveolar process of Maxilla and Mandible.

Retro molar Trigone

Behind the third molar tooth a small triangular surface is called Retromolar Trigone.

Base of the triangle - Last molar tooth.

Apex – Terminates at Maxillary tuberosity.

Hard Palate

It serves as a partition between Nasal and oral cavities.

Anterior 2/3 formed by palatine process of Maxilla.

Posterior 1/3 formed by Horizontal plate of Palatine Bone.

It drains mainly into upper deep cervical and retropharyngeal nodes.

Neck Nodes

The cervical lymphatic nodes are divided into seven levels.

1 Level I – Submental and submandibular group

- Level IA - bounded by the anterior belly of the digastrics muscle, the hyoid bone, and the midline (submental triangle).
- Level IB - bounded by the anterior and posterior bellies of the digastric muscle and the inferior border of the mandible.
- Level IB contains the submandibular gland along with the lymph node.

2. Level II – Upper Deep cervical group

Bounded superiorly by the skull base, anteriorly by the stylohyoid muscle, inferiorly by a horizontal plane extending posteriorly from the hyoid bone(upto hyoid bone inferiorly),and posteriorly by the posterior edge of the sternocleidomastoid muscle [between base of skull to hyoid bone].

3. Level III – Middle Deep cervical group

Begins at the inferior border of hyoid to the horizontal plane extending posteriorly from the inferior border of the cricoid cartilage and is bounded by the laryngeal strap muscles anteriorly and by the posterior border of the sternocleidomastoid muscle posteriorly.

4. Level IV- Lower Deep cervical group

Begins at the inferior border of cricoid cartilage to the clavicle bounded anteriorly by the strap muscles and posteriorly by the posterior edge of the sternocleidomastoid muscle.

5.Level V – Posterior group

It is posterior to the posterior edge of the sternocleidomastoid muscle, anterior to the trapezius muscle, superior to the clavicle, and inferior to the base of skull.

6.Level VI – Pretracheal, paratracheal and prelaryngeal group

Bounded by the hyoid bone superiorly, the common carotid arteries laterally, and the sternum inferiorly.

7. Level VII – Superior mediastinum

Lies between the common carotid arteries and is superior to the aortic arch and inferior to the upper border of the sternum.

Oral Cavity – Lymphatic drainage

1. Lips - Submandibular, preauricular and facial nodes
2. Buccal mucosa - Submaxillary and submental nodes
3. Gingiva - Submaxillary and jugulodigastric nodes
4. Retromolar trigone - Submaxillary and jugulo-digastric nodes
5. Hard palate - Submaxillary and upper jugular nodes
6. Floor of mouth - Submaxillary and jugular (middle and upper Nodes)
7. Anterior two thirds of the tongue - Submaxillary and upper jugular nodes

EPIDEMIOLOGY OF ORAL CAVITY CANCERS

Incidence

In western world it forms 2 – 4% of all newly detected cancers.

More than 90% are primary oral malignancy (ie) Squamous cell carcinoma.

Age

90% of oral cavity cancer appears over the age of 40 yrs and

65 yrs is the average age at diagnosis.

Mean age of survival is around 5 yrs from the time of diagnosis.

Mean age of death is around 68 yrs.

Sex

Male to female ratio is 2 : 1

But male-to-female ratio is steadily decreasing because of the increased incidence of female smokers.

The highest incidence areas of France, Hong Kong, India, Spain, Italy, and Brazil, as well as in U.S. blacks incidence in males exceed 30 per 100,000.

The highest female rate greater than 10 per 100,000 is found in association with chewing of betel quid and tobacco in India.

Race (Ethnic) Origin

Before the age of 55 Yrs. Oral cavity – carcinoma is the 6thmost common carcinoma in whites and in blacks it is the 4thmost common carcinoma.

Lip and Salivary gland tumors are more common in white Americans than Black Americans.

When Compared to U.S.A. higher rates of oral cavity Cancers are reported in India, South East Asia, Hungary and Northern France.

SECOND PRIMARY CARCINOMA

Second Primary carcinoma is defined as Synchronous (Differentsites within 6 Months) (Or) Metachronous (different sites after 6months) (or) same site after 3 years of Malignancy.

Risk of second Carcinoma is more pronounced among patients younger than 60 years of age.

MOLECULAR BIOLOGY OF ORAL CAVITY SQUAMOUS CELLCARCINOMA

New exciting field which throws more light on the pathogenesis of oralcavity cancer. Dysregulation of the molecular processes that underline tumorogenesis and metastasis in oral cavity squamous cell carcinoma.

Three of these Mechanisms are

1. Field Cancerisation
2. Genetic progression
3. Cancer Controlling genes

1) Field Cancerisation

Slaughter and Colleagues had described this phenomenon.

Regions of grossly normal mucosa with chronic exposure to environmental mutagens in tobacco and Alcohol (or) Infection with HPV Contribute to the development of dysplastic mucosa.

2) Genetic Theory

Genetic alteration in histologically normal tissues and in premalignant lesion includes

a) Loss of Heterozygosity

b) Activation of Telomerase

c) DNA – Hyper Methylation.

3) Cancer controlling genes

a) Oncogenes

Hyper functionality of these carcinogens directly contribute to malignant process. In Oral Cavity Squamous Cell Carcinoma involved genes

1) EGFR (Endothelium derived Growth Factor Receptor)
2) STAT – 3 (Signal Transducer and activator of Transcription Family)

b) Tumor suppressor genes

Loss of both alleles of a tumor suppressor gene through mutation, deletion results in alteration of cellular Homeostasis (Knudson – Two hit Hypothesis)

c) Stability genes

House keeping of the cells DNA has been termed as stability genes. Mutation (or) Non-functionality results in carcinogenesis. FANCA gene has genetic predisposition for oral cavity carcinoma.

Hanahan & weinburg suggested certain alteration in physiological process such as autonomy in growth signaling, invasion of apoptosis, unresponsiveness to growth inhibitor signaling, limitless replication, angiogenesis, invasion and metastasis are the molecular changes in carcinogenesis.

GENETIC CHANGES IN ORAL CARCINOGENESIS

1) EGFR/TGF – 2α – Increased production

2) TP53 gene – Loss of P53 gene

3) TP 16 & cyclin D1 – Activation

4) BAX – proapoptic – Decreased

5) BCL2 – anti apoptic – Increased

Understanding of the above molecular biology has led to therapeutic strategies that target dysregulated processes in tumor microenvironment.

RISK FACTORS

1) **Tobacco:**

Contains more than 300 carcinogens.

Tobacco consumed in2 ways

a) Smoking tobacco

b) Smokeless tobacco or spit tobacco

a) **Smoking tobacco:**

Consumed in the form of cigarette, beedi and kreteks. Carcinogens increase the relative risk by causing mutations that disrupt the cell cycle regulation or through an effect in the immune system

b) **Spit tobacco or smokeless tobacco:**

Used in 3 forms

Chew – Leafy form of tobacco used with betel leaf & lime

Plug – That has been compressed in to brick form and consumed

Snuff – powdered form of tobacco usually sold in tins or flat cans.

It causes hyperkeratosis, dysplasia and squamous cell carcinoma

Tobacco Contains Aromatic Hydrocarbons, Benzpyrene and Tobacco

Specific Nitrosamines act locally on the stem cell and Interfere with DNA synthesis.

Relative Risk is 8 times (or) more.

Alcohol

Alcohol particularly hard liquor incidence is 6 times more common among drinkers than non drinkers.

Alcohol and smoking have a synergistic effect.

Pooling of Saliva with carcinogens results in oral cavity cancer.

Extreme alcohol consumption of 55 drinks / week carries greater risk than tobacco alone.

U – V Radiation

Risk of cancer of the lower lip from exposure to UV radiation, in areas close to the equator. Lips are at increased risk, since it lacks a pigmented layer.

Viruses

HPV (6 and 16) are at increased risk for oral cavity cancer.

HPV 16 - 5 times more common risk.

HPV 6 - 3 times more common risk.

Diet Nutrition

Iron deficiency anaemia (Plummer Wilson Syndrome) (or) Paterson Brown – Kelly Syndrome.

Vitamin A, C & E deficiency.

Dental Factors

Poor Oral Hygiene leads to higher levels of salivary acetaldehyde a Known carcinogen in oral cavity cancer.

Persistent Irritation to the oral mucosa in the form of ill fitting denture scan lead to dysplastic changes in the epithelium

Occupational exposure

Usage of certain chemicals including Formaldehyde, Nickel, Chromium and leather Tanning Products, are at increased risk.

Immune Competence

Compromised Immunity related to HIV Infection, organ transplantation, chemotherapy (or) Radiation therapy acts as contributing factors.

Genetic & Familial Syndromes

Syndromes associated with defective DNA repair including xeroderma Pigmentosa, Ataxia Telangectasia, Bloom's syndrome and Fanconis anaemia are at increased risk.

Increased risk of second primary Malignancy of oral cancer found commonly in Li Fraumeni syndrome (P53 deficiency)

PREMALIGNANT CONDITIONS

1) Oral Leukoplakia

Defined as white keratotic Plaque (or) Patch. key pathological features include hyperkeratosis, Parakeratosis and acanthosis.

Varieties include Leukoplakia Simplex, Leukoplakia Verrucosa, and Leukoplakia erosive.

2) Erythroplakia

Red mucosal patch is more commonly found in soft palate and tonsillar fossa. 7 times higher risk than Homogenous Leukoplakia.

3) Erythroleukoplakia

5 times more risk than Homogenous Leukoplakia.

4) Proliferative verrucous Leukoplakia (PVL)

Proliferative, generally irregular white patches (or) plaques that progress slowly multifocally in the oral mucous membrane. 100% can develop Squamous / verrucous cell ca.

Most patients of PVL are non smokers; women are at increased risk than men, peak age of incidence is between 60 and 70 yrs.

5) Lichen Planus

Lymphocytic Infiltrate in epithelial layers.

6) Oral sub mucosal Fibrosis

Causative agent Areca–catecha a component of Betel-nut thought to affect collagen synthesis. It presents with thickened, White mucosa lacking elasticity.

7) Sublingual keratosis

8) Oral epithelial Dysplasia

Epithelial dysplasia characterized clinically by an alteration in oral epithelium.

Other premalignant lesions

- Actinic keratosis
- Discoid Lupus Erythematosis
- Chronic Hyperplastic conditions
- Atypia in Immunosuppression
- Syphilitic Leukoplakia.

Treatment of Premalignant Conditions

1) Biopsy shows no malignant transformation – observation of the patient

2) Larger area shows extensive lesion – Excision of mucosa and grafting.

Cryotherapy, CO2 laser ablation, Low dose β carotenes, Topical steroids, Topical cyclosporine and Retinoids are used for treating premalignant conditions.

CLASSIFICATION OF TUMORS

1) Primary

2) Secondary

Primary Epithelial Origin

- Squamous Cell Carcinoma

- Adeno Carcinoma

Non Epithelial Origin

Melanoma, soft tissue sarcoma, Plasmacytomas

Squamous Cell Carcinoma and Other Variants Include

- Lymphoepithelioma,

- Spindle cell Carcinoma

- Verrucous – Papillary (exophytic)

– Adenoid (Acantholytic)

– Adeno Squamous

– Baseloid

– Undifferentiated carcinoma

– Transitional cell carcinoma

– Keratinized Carcinoma

– Non Keratinized Carcinoma.

Adenocarcinoma and their variants

- Malignant Mixed Carcinoma
- Adenocystic Carcinoma
- Mucoepidermoid Carcinoma
- Acinic cell carcinoma.

PATHOLOGY

Majority of Head and Neck Cancers arise from the surface epithelium therefore squamous cell Cancer and its variants, are the most common type.

Verrucous carcinoma

Verrucous is a Low grade Squamous Cell Carcinoma found most often in the oral cavity particularly in the buccal mucosa and gingiva.

Verrucous carcinoma resembles a wart with, distinct margin,

Roughened, cobblestone appearance, it rarely develops Lymph node Metastasis.

HISTOLOGICAL GRADING

Broders established a histological grading for Squamous Cell

Carcinoma based on Microscopic evaluation of the tumor.

Cellular differentiation based on the degree of cellular pleomorphism, frequency of mitoses and extent of Keratinisation.

It is classified as

a) Well differentiated (Grade – I)

b) Moderately differentiated (Grade II)

c) Poorly differentiated (Grade III)

d) Undifferentiated (Grade IV)

Some may Include pattern of Invasion, stage of Invasion, presence of angiolymphatic tumor thickness, DNA content and their Serum Markers.

CHIEF SYMPTOMS

Ulcer , Dysphonia, Swelling , Retromolar Extension, Fetor ,Ankyloglossia, Excessive salivation , Trismus, Difficulty in chewing , Bony erosion, Lump in neck , Dysphagia, Pain

METHODS OF SPREAD OF SQUAMOUS CELL CARCINOMA

I. Local Spread

II. Lymphatic

III. Blood borne

I. LOCAL SPREAD

a) Invasion of Soft tissues

Infiltrate deeply into adjacent connective tissue, carcinoma tongue Infiltrate more posteriorly than anteriorly.

b) Invasion of Perineural spaces

Perineural spread is characteristic of adenoid cystic Carcinoma. Centripetal Infiltration of tumor along the branches of mandibular nerve(Inferior Dental, Long Buccal, or Lingual), is common.

For this reason, whenever the mandible is resected, Inferior dental bundle should be resected as high as possible.

c) Invasion of Vessels

Invasion of arteries are rare.

Main predisposing factors are irradiation of neck, necrosis of skin flap, infection and salivary fistula. Even in patients with carotid rupture Infiltration not seen.

No correlation is seen between infiltration of internal jugular vein and presence of systemic metastasis.

d) Invasion of Bones

Principle mode of access

1. Facial bones by direct extension.
2. Anatomical openings such as inferior dental canal and Incisive palatine foramen.
3. Periosteal lymphatic spread may occur.

Despite the dense cortical plate, Mandibular Invasion is more common than Maxillary Invasion.

II. LYMPHATIC SPREAD

Cancers of the oral cavity mainly Involves (Level I, II & III) (Sub mental, Sub mandibular, upper, middle cervical) and Jugulo digastric Nodes.

Important prognostic factors include multiple involved nodes, metastasis in low cervical nodes, and extra capsular invasion.

III. BLOOD BORNE SPREAD

Risk of Distant metastasis is infrequent. Poorly differentiated &younger patients are at more risk. Lungs, Liver and Bone (Vertebrae, Ribs and Skull) are involved in blood borne spread.

According to anatomical area modes of spread

1. Lips Skin, Commissure, Mucosa and Muscle
2. Gingiva Soft tissue, buccal mucosa, Periosteum,Bone, maxillary antrum and Dental nerves
3. Buccal mucosa Side walls of the oral cavity, Lips, Retromolar trigone and Muscles
4. Hard palate Soft palate, Bone, maxillary antrum and Nasal cavity
5. Retromolar Trigone Buccal mucosa, Anterior pillar, Gingiva and Pterygoid muscle
6. Floor of mouth Soft tissue, tonsils, salivary glands, Root of tongue, Base of tongu and Geniohyoid, mylohyoidmuscles
7. Tongue Anterior two thirds of tongue, Lateralborders, Base and underside of tongue and Floor of mouth

PRETREATMENT EVALUATION

Complete History & Physical Examination

- Biopsy of the primary
- FNAC of the neck nodes.
- Incision / Excision biopsy of the nodes.

Imaging Studies

- Chest X ray – PA view.
- CT / MRI of Primary and Neck – To know the extent of primary and Cervical Nodal involvement.
- Panorex (Or) dental x ray – To Evaluate mandibular invasion.

Laboratory tests

- Pre anaesthetic testing
- Baseline Liver function tests
- Additional laboratory tests as per the patient medical history.

Examination under anaesthesia

- Direct laryngoscopy & pharyngoscopy

- Esophagoscopy

- Bronchoscopy

- Palpation of tongue, oro and Naso Pharynx.

Neck Nodes

Histological demonstration of metastasis in a lymph node is gold standard.

Investigations for neck nodes include

- Computerized tomography,
- MRI and FDG
- PET.

MRI and CT have higher sensitivity & specificity than clinical examination in detection of metastasis.

CT / MRI can detect lymph nodes larger than 1.5 cm in diameter.

FDG–PET is more sensitive & specific than CT / MRI. Current

FDG–PET can detect tumors smaller than 1cm.

CT & MRI detect the metastasis, relationship of a metastatic tumor with critical structures such as internal carotid artery, cervical spine, vertebra lartery and brachial plexus.

New MRI Methods

a) Volumetric Interpolated Breath Hold Examination (VIBE)

b) Functional imaging using Dynamic Contrast enhanced MRI.

c) Diffusion weighed Imaging.

d) Iron oxide enhanced MRI. (Ultra small super paramagnetic Iron oxide)

TNM STAGING

Primary Tumor (T)

TX - Primary tumor cannot be assessed

T0 - No evidence of primary tumor

Tis - Carcinoma in situ

T1 - Tumor 2 cm or less in greatest dimension

T2 - Tumor more than 2 cm but not more than 4 cm in greatest dimension

T3 - Tumor more than 4 cm in greatest dimension

T4 - Tumor invades through cortical bone, inferior alveolar nerve, floor of mouth, or skin of face, (i.e.) chin or nose.

T4a - Tumor invades adjacent structures through cortical bone, into deep muscles of tongue (genio-glossus, hyoglossus, palatoglossus, and styloglossus), maxillary sinus and skin face.

T4b - Tumor invades masticator space, pterygoid plates, skull base or encases internal carotid artery.

Regional Lymph Nodes (N)

NX - Regional lymph nodes cannot be assessed

N0 - No regional lymph node metastasis

N1 - Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension.

N2 - Metastasis in a single ipsilateral lymph node, more than 3cm but not more than 6 cm in greatest dimension; or in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension; or in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension.

N2a - Metastasis in single ipsilateral lymph node more than 3 cm but not more than 6 cm in greatest dimension.

N2b - Metastasis in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension

N2c - Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension

N3 - Metastasis in a lymph node more than 6 cm in greatest dimension.

Distant Metastasis (M)

MX - Distant metastasis cannot be assessed

M0 - No distant metastasis

M1 - Distant metastasis

STAGING

Stage 0 >Tis N0 M0

Stage I >T1 N0 M0

Stage II> T2 N0 M0

Stage III> T3 N0 M0

>T1 N1 M0

>T2 N1 M0

>T3 N1 M0

Stage IVA >T4a N0 M0

>T4a N1 M0

>T1 N2 M0

>T2 N2 M0

>T3 N2 M0

>T4a N2 M0

Stage IVB> Any T N3 M0

>T4b Any N M0

Stage IVC >Any T Any N M1

TREATMENT OF ORAL CAVITY CARCINOMA

Treatment of oral cavity Carcinoma requires multimodality management.

Goals

According to the stage of tumor, the treatment protocol varies.

It is roughly divided into resectable disease and unresectable disease.

"Unrescetable" refers to tumors that cannot be removed without unacceptable morbidity and if it involves the vital structures like cervical, Brachial plexus, carotid artery it can be termed unresectable.

SURGERY

a) Surgery of the primary alone

b) Surgery of the primary with mandibulectomy

c) Surgery of the primary with neck dissection.

d) Surgery of the primary with neck dissection & mandibulectomy

I) LIP CARCINOMA

Enbloc removal of the tumor with 2cm clearance in all dimension.

Tumors less than 2 cm

i) Moh's micrographic excision

ii) Alternative forms of therapy include

- Cryotherapy,
- Electrocautery,
- Chemotherapy (Topical application of 5FU)
- Photodynamic therapy.

Alternative forms are mainly used for tumors less than 1.5 cm.

Tumors more than 2 cm

If carcinoma is advanced, bone and neural involvement should be ruled out by doing OPG (Orthopantagram) / CT / MRI of the Mandible.

If mandible is involved composite resection (Tumor removal with /Segmental Mandibulectomy and Neck dissection) is the surgery of choice.

II) TONGUE CARCINOMAS

Surgical resection of the oral tongue with tumor free margin of at least1 cm.

T1T3 No – Partial glossectomy.

Large Cancers – Extensive surgery such as total glossectomy and Reconstruction.

III) ORAL CAVITY EXCLUDING TONGUE & LIP

Resection of the floor of mouth, buccal mucosa, tongue and mandible can be done by any one of the four approaches.

It includes,

a) Transoral

b) Mandible sparing (Pull through)

c) Mandibulotomy.

d) Composite resection.

a) Transoral

Tumors which are smaller anterior, superficial, well circumscribed lesions situated in the floor of mouth, anterior 2/3 of the tongue, buccal mucosa and palate are removed through this approach.

b) Pull through procedure

It is ideal for moderate sized cancers of the anterior, lateral and floor of the mouth without Involvement of the mandible. If the adequate surgical lmargin is not obtained it can be combined with marginal mandibulectomy.

c) Mandibulotomy

Posterior oral cavity and oropharynx are better approached by dividing the mandible lateral to midline (i.e.) Anterior to mental foramen

d) Composite resection

Tumor invades the lateral (or) anterior arch of the mandible, it needs full thickness resection of the mandible along with tumor and neck nodes.

Preserving the posterior edge of ramus of mandible, coronoid and condylar processes will help in reconstruction.

RECONSTRUCTION

Lip reconstruction :

Upper Lip,

Lower Lip,

Lip Commisure

Total defect is less than 30% - Primary closure.

If it is more than 30% - Partial / Full thickness Skin graft / Vicinity flap(Local)

Skin Graft

Moh's micrographic surgery, which does not involve the vernillon

Can be grafted, either by partial (or) full thickness graft.

Vicinity flap :

Labial rotation and advancement flap.

- Abbes flap (Both upper & Lower Lip defect)
- Double Abbes flap (75% central defects of lower lip)
- Eslander flap (Lower Lateral Lip)
- Gillies fan flap
- Karapandizic (Central defect more than 80%)
- Stepladder Flap / Staircase Flap. (Central & Lateral defect)

Vermillion Reconstruction

Small defect - Full thickness Horizontal releasing Incision.

Extreme vermillion Musculo Defect–Mucosal flap eg. Fascial artery

- Musculo Mucosal Flap.

Tongue Reconstruction

For smaller defects - Primary closure (or)

Skin graft either partial (or) full thicknesswith bolstering sutures

For Larger defects - Pectoralis Major Myocutaneous flap

(PMMF) for total glossectomy.

Reconstruction of oral cavity excluding lip, Tongue Ca

For Cheek - Local flaps such as Rhomboid flap

[Limberg (or) Dufourmental flap]

'V – Y' Local transposition flap.

Musculo Cutaneous flap

Sternocledomastoid flap – Augment mandibular coverage

Lateral & Inferior Trapezius – Intra oral reconstruction.

musulocutaneous flap

Pectoralis Major Flap – Total glossectomy and Composite post mandibular defects.

Platysma flap – Buccal sulcus and buccal mucosa.

Free Flap

Radial Forearm flap – oral lining restoration.

Rectus abdominis flap (RAF) – Total / Subtotal glossectomy Hemimandibulectomy and complex

Intra-oral defects.

Lateral thigh flap – Lining of oral cavity.

Recipient site complications

a) Flap necrosis

b) Infection

c) Fistula

Donor site Complications

a) Haematoma and Seroma

b) Infection and wound dehiscence

c) Partial / Total skin graft loss

d) Tendon exposure

e) Hernia and contour abnormality.

BONY INVOLVEMENT

For mandibular invasion

a) Marginal Mandibulectomy

If there is microscopic invasion of the mandible i.e. periosteum (or) cortical layers and for adequate access during the surgery marginal mandibulectomy is performed.

b) Segmental Mandibulectomy

If there is cortical Invasion of the Mandible detected clinically, radiographically, (or) intraoperatively an enbloc segmental Mandibulectomy is done.

c) Partial Mandibulectomy

Mandible and tumor are usually resected from the mental Foramen to the coronoid process generally leaving behind the condyle.

d) Hemi Mandibulectomy

Removal of the mandible-from symphysis to the condyle on one side.

RECONSTRUCTION OF MANDIBLE

Mandibular resection produces major cosmetic and functional loss and reconstruction is by Biological & Non Biological prosthesis.

Osteomyocutaneus flap

Trapezius flap with spine of scapula

Pectoralis Major flap with 5th (or) 6th rib.

Non Biological Prosthesis

a) Plastics : Acrylic, Teflon, Slapstick

b) Inert Metals : Stainlesssteel, Tantalum, Vitallium and Titanium.

Biological Prosthesis

Bone graft, Pedicled graft, Free Flaps.

NECK DISSECTION

Neck dissections are classified as follows

1. Radical Neck dissection
2. Modified Radical neck dissection
3. Selective Neck dissection
    a. SND (I-III / IV)
    b. SND (II-IV)
    c. SND (II-V, Post auricular, Sub occipital)
    d. SND (Level VI).
4. Extended Neck dissection

Various incisions are being used for neck dissection

(a) Latyschevsky (b) Freund (c) Crile (d) Martin

(e) Babcock and conley.

1) Radical Neck Dissection

Removal of level I-VI nodes along with removal of Internal Jugular Vein, Spinal Accessory Nerve and Sternocledomastoid Muscle.

2) Modified Neck Dissection

Removal of Level I-VI Nodes along with preservation of Internal jugularvein, Sternocledo mastoid muscle, and Spinal accessory nerve

Type – I : Preserves only Spinal Accessory Nerve.

Type – II : Preserves Internal Jugular. Vein & Spinal Accessory Nerve

Type – III : Preserves Sternocledomastoid, Internal Jugular Vein and Spinal Accessory Nerve.

3) Selective Neck Dissection

a) Supraomohyoid Neck Dissection: (SND-I-III)

Removal of Level I-III nodes.

b) Extended Supraomohyoid Neck Dissection : (SND-I-IV)

Removal of Level I-IV nodes.

c) Lateral Neck Dissection (SND II – V)

Removal of II-IV nodes along with Internal Jugular Vein

d) Posterolateral Neck Dissection : (SND II – V)

Removal of II – V group of nodes.

e) Anterior Neck Dissection: (SND VI)

Removal of Level VI nodes.

4. Extended Neck Dissection

Neck dissections can be extended to include either of the Lymph node groups that are not routinely removed i.e. Retropharyngeal, Paratracheal,Upper mediastinal (or) other structures such as skin of the neck, carotid Artery, Levator Scapula, Vagus (or) Hypoglossal nerve.

SURGERY FOR N0 NECK

Clinical examination, imaging and pathological assessment fail to detect any evidence of regional disease it is called as N0 Neck.

Treatment options for No Neck

a) Elective Neck Dissection

b) Elective Neck Irradiation

c) Sentinel lymph node Biopsy

Elective Neck Dissection

When the primary tumor is treated with surgery, elective neck dissection is preferred.

Elective Neck Irradiation

When primary tumor is treated with radiotherapy, elective neck irradiation is preferred.

Sentinel Lymph node Biopsy

Newer option for staging the Neck. Lymphatic drainage from a primary tumor is limited to set of regional lymph nodes, which are

identified by contrast agents (or) radioactive tracers, those identified nodes are removed.

SURGERY FOR NODAL DISEASE

N1, N2, N3 - Neck dissection (Modified Radical Neck dissection / Radical Neck dissection / Selective Neck Dissection) and Post Operative Radiotherapy optional if, extracapsular involvement of the nodes are present.

Surgery for Bilateral Nodal disease

Bilateral neck dissection simultaneously with preservation of one of the Internal jugular vein.

Surgery for Metastatic disease

Retropharyngeal, Internal jugular vein and Posterior triangle nodes are involved, radiotherapy is the best option. It is a bad prognostic indicator.

Complications of Block dissection Emergency Complications

a. Infection (1.7%) a. Carotid Artery rupture

b. Air Leak b. Jugular Vein Blow out

c. Bleeding

d. Chylous Fistula

e. Fascial or cerebral edema

f. Blindness

g. Apnoea

h. Jugular Vein Thrombosis

Radiotherapy for Nodal Involvement

Primary Radiotherapy for the Nodes, several important factors are taken into account.

a) Nodal size

b) Nodal Number

c) Nodal fixation

d) Duration of Radiation

RADIATION THERAPY

Main stay of treatment for cancer in the head and neck region.

Choice of therapy

a) External Beam Therapy

b) Brachy Therapy

c) Intra Operative Radiation Therapy

RADIOTHERAPY FOR CANCER OF THE LIP

Definitive RT

Primary

External beam RT > 66 Gy (2.0 Cy / day)

External beam RT > 50 Gy+ brachytherapy

Brachytherapy alone

Neck

> 50 Gy (2.0 Gy/day)

Adjuvant RT

Primary

External beam RT > 60 Gy (2.0 Gy/day)

Neck

50 – 60Gy (2.0 Gy/day)

RADIOTHERAPY FOR CANCER OF THE ORAL CAVITY

Definitive RT

Primary

External beam RT > 70 Gy (2.0 Cy / day)

External beam RT > 50 Gy+ brachytherapy

Brachytherapy alone

Neck

> 50 Gy (2.0 Gy/day)

Adjuvant RT

Primary

External beam RT > 60 Gy (2.0 Gy/day)

Neck

50 – 60Gy (2.0 Gy/day)

a) External Beam Radio Therapy (Teletherapy)

Dual energy linear accelerators capable of generating

i) Low energy megavoltage (4-6 mv)

ii) High energy megavoltage (15-25mv)

iii) Range of electrons (6-18 to 25 mv)

Head and neck cancers are better managed with 4-6 mv Cobalt-60 rays, with depth not more than 7-8 Cm.

Intermittent daily dose is given for 5 days in a week for a period of

7-8 weeks, neighboring normal tissues also get its share of dose and damage may occur.

b) Conformal Radiotherapy

High dose of radiation to the target volume and small dose to normal tissues.

IMRT (Intensity Modulated Radiotherapy)

Treatment is divided into hundreds of pencil beam each one

contributing radiation to different parts of target volume. Computer controls the amount of radiation.

c) Brachy-Therapy

Selectively used in Treatment for early T1 & T2 lesions and achieves high control rates.

High doses to the target volume and simultaneous sparing of normal areas.

Implants today in use are Ir-192 (or) I2-125, others are Radium 226, Gold-198, and Palladium-103.

Various techniques are used to place radioactive material in a desired geometric pattern. “Paris System” is most widely used.

d) Intra-operative Radiation

Either by electron beams or Ortho voltage Radiation. Mainly used for small superficial tumors (2 – 5 Cms) preferably on flat surface.

Pre-Operative Radiotherapy :

It is a debate for many years but now in use

Post Operative Radiotherapy :

It is ideal in most situations.

Surgical margins at the primary site are positive or macro scopicresidual disease is present.

Skin, Soft tissue, Cartilage and bone are involved.

Lymph node of Neck is histologically positive.

Advanced primary T3, T4 lesions.

Radiotherapy is usually started 4-6 weeks after surgery. Any delay after 8 Weeks is not ideal.

Advantages of Pre-Operative RT

Inoperable lesion may be converted to operable

Extent of surgery

Distant metastasis may decrease.

Disadvantage of Pre-Operative RT

Increased morbidity

Decreased wound healing.

Advantages of Post-Operative RT

Extent of disease is known

Higher doses may be delivered

Healing is superior

Disadvantages of Post-Operative RT

Distant metastasis likely to be greater.

Decreased vascularity at the time of radiotherapy due to surgical tampering.

Pre-Irradiation Dental Care

1) Instructions regarding the complete oro-dental hygiene, regular mouthwash, cleaning of mouth after each meal.
2) Avoid hard tooth brush.
3) Fluoride tooth paste to prevent caries.
4) Extraction has to be done, with a minimum of 2-3 weeks before starting radiotherapy.

Post Irradiation Dental Care

Extraction has to be carried out 18-24 months after radiotherapy once oral mucosa has healed.

Recommended Skin Care

- Wash the skin with lukewarm water, pat dry, and do not wash off marks.
- Use mild soaps
- Use water-based lotions or creams
- Avoid lotions with perfume and deodorants.
- Avoid direct sunlight.
- Do not use straight razors.
- Avoid tight-fitting collars
- Do not use aftershave lotions or perfumes.
- Apply only non adherent, hydrophilic dressings to wounds.

Complications of RT

Acute & chronic

Dose related

Acute: Mucositis, dermatitis, hair loss, loss of taste, xerostomia,cataract.

Chronic: Soft tissue fibrosis (necrosis), Radio necrotic ulcer and Osteo radionecrosis.

Dose related

Around 20–30GY : Mucositis, ulceration, erythema, hyperpigmentation.

Around 50 GY : Dryness of mouth (Serous secretion low)

Around 65 GY : Severe ulceration.

RADIOSENSITISERS

Chemical compounds when combined with radiation should achieve greater tumor inactivation than would have been expected from the additive effect of each modality.

e.g.: Nitroimidazole compounds (Misonidazole – 2nd generation) 3rd generation (Etanidazole, Pimonidazole)

RADIOPROTECTORS

Chemical compounds that protect against radiation damage to target normal cells and not to tumor cells.

e.g.: Amifostine (WR-2721), Ethyol.

For early lesions (T1 – T3) local cure is achieved by surgery or Radiotherapy alone.

For (T3 – T4) lesions combined modality of Treatment, surgery is effective in removing large bulky lesion and irradiation for microscopic disease.

CHEMOTHERAPY

Introduction of more active chemotherapeutic agents and combinations being increasingly used in complex multimodal treatment plans along with surgery and Radiotherapy.

General Strategies

1. Induction is given before surgery or radiation (Neoadjuvant chemotherapy)

2. Concomitant chemoradiation – chemotherapy is given simultaneously with radiation.
3. Adjuvant therapy where chemotherapy is given after surgery (or) radiotherapy in an effort to reduce metastatic burden.

Induction Chemotherapy

Cisplatin (100mg/m2) followed by 5 days infusion of 5FU (1gm/m2/day) are given before surgery. Recently Docetaxel is added to the above regimen.

Concomitant Radiotherapy and Chemotherapy

High risk patients, disease recurrence after surgical excision, multiple nodal metastasis and extracapsular spread are present, Concomitant chemotherapy and radiotherapy showed better response.

Adjuvant Chemotherapy

After primary surgery or after primary radiotherapy cisplatin and 5FUare given.

Intra Arterial Chemotherapy

Intra Arterial infusion of 5 FU bypasses the catabolic effects of liver, there by prolonging the therapeutic action of drugs. It is useful in maxillary sinus carcinoma.

Immunological agents & Newer Drugs

Epidermal growth factor receptor (EGFR) is over expressed in invasive squamous cell carcinoma.

Gefitinib and erlotinib – single agent activity with advanced disease.

Cetuximab – murine monoclonal Antibody directed against extracellular domain of EGFR.

FOLLOWUP

American Head and Neck society guidelines for cancer surveillance.

Years Post Rx Follow-up

1st Year>1 – 3 Month

2nd Year >2 – 4 Month

3rd Year >3 – 6 Month

4th & 5th Year >4 – 6 Month

After 5th Year> Every 12 Month

CHEMOPREVENTION

Patients with oral Intraepithelial Neoplasia have an increased risk of developing squamous cell carcinoma because of combination of carcinogens and genetic predisposition.

Loss of Heterozygosity, Aneuploidy, Telomerane activation, cyclin D1 elevation, COX-2 up regulation , EGFR activation, are all incriminated in the causative factors for transformation of Oral Intraeptithelial Neoplasia to Squamous cell carcinoma.

Vitamins (A, E, C), Retinoids, Beta Carotene, Minerals, Folates and Selenium are agents, which probably prevent the transformation of Oral intraepithelial Neoplasia to oral cavity Carcinoma.

FUTURE DIRECTIONS

Nanotechnology

Magnetic properties of hydrogen in biologic tissue is one of the most powerful diagnostic tools in medicine. It is used in Nanotechnology

Cells Irradiated with Nanoshells causes circular zones of cell Death. Nanoshells mediated Infrared therapy are used for tumors under magnetic resonance.

Personalized therapy

Microarray C-DNA library analysis allows measurement of expressions of tens of thousands of genes by cancer cells.

In near future a treatment programme of 10 (or) even 100 monoclonal antibody based agents as determined by micro array analysis will be available.

SCREENING FOR ORAL CANCERS

Four methods are available for early cancer detection.

- Visual examination
- Application of toluidine blue
- Self screening
- Oral cytology

1. Visual examination

Sensitivity for oral visual examination 58% - 94%

Specificity rate for oral visual examination 76% - 98%

2. Application of toludine blue :

Application of toludine blue will provide demarcation between malignant and dysplastic cells. It will be useful in the early detection of oral cancers in selected subjects with precancerous lesions.

False negative and false positive rates range from 20-30%

3. Self Screening

In High risk population groups self screening is mandatory and flexibility depends on health education.

4. Oral cytology

Oral exfoliative cytology, a screening modality has major limitation. There is a high false negative rates hence biopsy is preferable than oral cytology.

MATERIALS AND METHODS

MATERIALS AND METHODS

Place of study : Madras Medical College & Rajiv Gandhi Government General Hospital Chennai - 600003.

Design of study : Observational study (Prospective & Retrospective)

Period of study : October 2016 to September 2017

Sample size : 30

Inclusion criteria : Patient with oral cavity cancer with or without secoudaries whose histopathology showing only squamous cell carcinoma are included

Exclusion criteria: Patient with oral malignancy outside oral cavity (Nasalcavity, Nasopharynx, Oropharynx, Hypopharynx, Larynx,Paranasal sinus) and salivary gland tumour and HPE showing non squamous cell carcinoma are not included.

The patients age, sex, Habits, socio economic status, premalignant conditions, clinical features, site of oral cavity, staging, histopathology were recorded.

Following Investigations were taken up for Diagnostic and staging purpose,

1) HPE report
2) X-ray Mandible AP / Lateral
3) X-rays PNS & Neck
4) X-ray Chest-PA view
5) USG Neck & Abdomen
6) CECT/MRI Head and neck
7) VDL or IDL scopy

For Clinical assessment and for co morbid conditions

i) Urine – Albumin & Sugar
ii) Blood Hemoglobin & hematocrit
iii) Blood sugar, urea and serum creatinine
iv) Serum electrolytes
v) Liver function test
vi) Renal function test
vii) Clotting Time & Bleeding Time
viii) ECG in all chest leads were taken.

Treatment protocol

Planned accordingly

1) Surgery
    a. Wide local excision (WLE) alone
    b. Wide local excision with neck dissection
    c. Wide local excision with Mandibulectomy
    d. Composite Resection (WLE with neck dissection and Mandibulectomy)with Primary reconstruction was done.

Immediate post operative complications were identified and treated.

2) Radiotherapy – curative 50-70 Gy in 200 for 30cycle & Palliative 40 Gy

3) Chemotherapy – cisplatin (50- 70 mg/sq m) every 3 wks

FOLLOW UP : patients were observed regarding the local recurrence nodal disease (or) recurrence in neck treated and evidence of Second primary with (or) without metastasis.

The patients were informed regarding the risk factors and advised to give up the offending Habits to have longer disease free survival.

The relatives were informed regarding the correlation between risk factors and oral cavity carcinoma plastic and oncologist surgeon's opinion and help were obtained in selected cases.

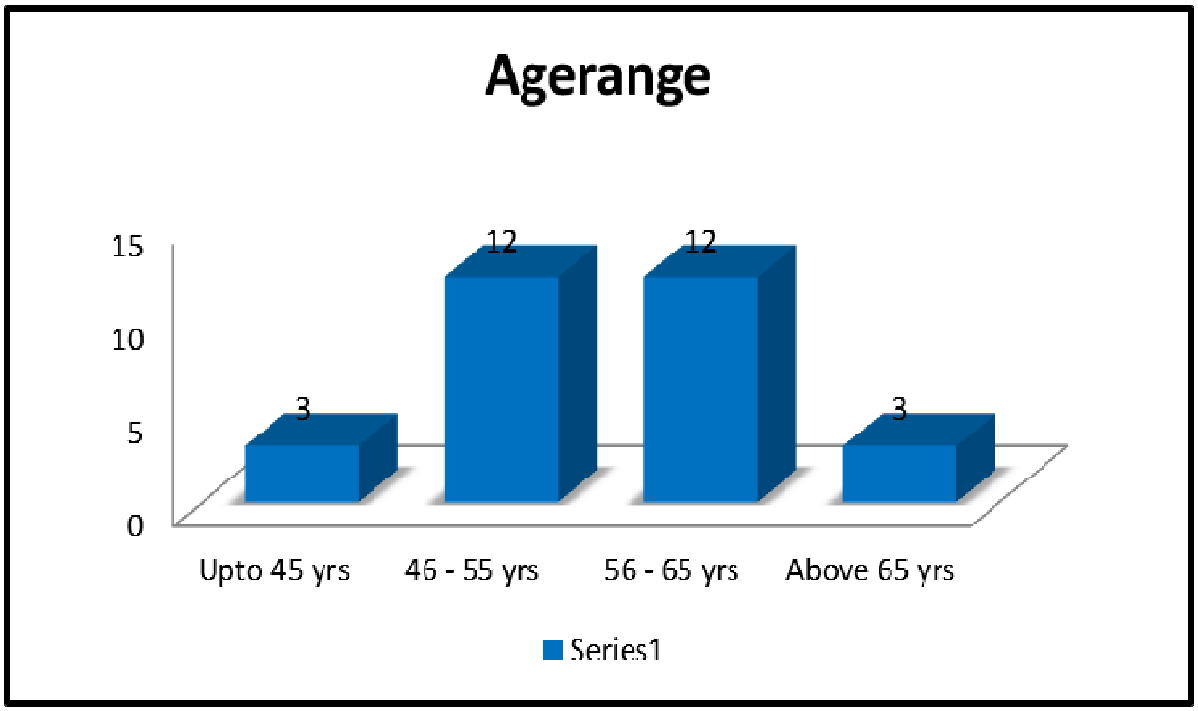
Statistical analysis of the data is being

DATA ANALYSIS AND RESULTS

DATAANALYSIS AND RESULTS

DISTRIBUTION OF PATIENTS IN VARIOUS AGE GROUPS

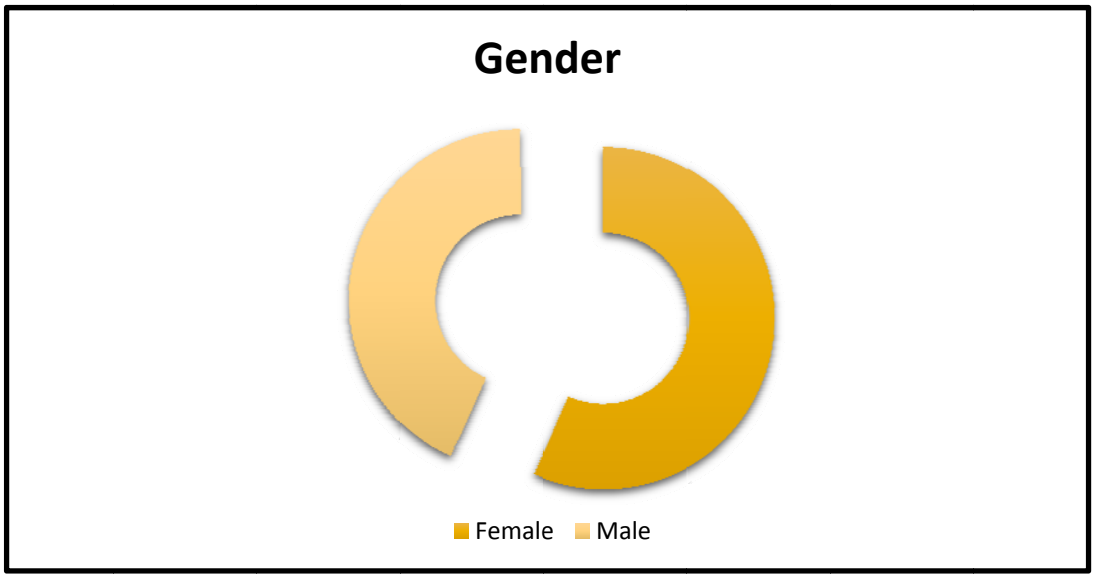
		Frequency	Percent
age	Upto 45 yrs	3	10.0
	46 - 55 yrs	12	40.0
	56 - 65 yrs	12	40.0
	Above 65 yrs	3	10.0
	Total	30	100.0



Most of the patient both male and female belong to age groups 45 to 55years

DISTRIBUTION OF PATIENTS IN VARIOUS SEX GROUPS

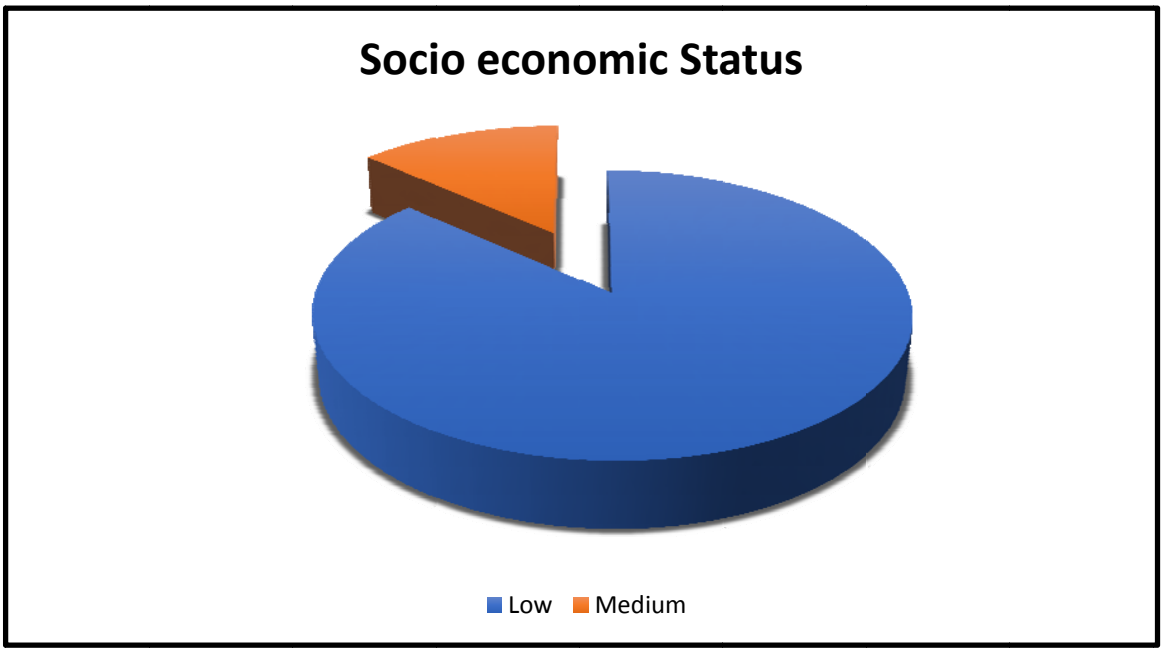
		Frequency	Percent
sex	Female	17	56.7
	Male	13	43.3
	Total	30	100.0



Most of the patient in this study groups are female

INCIDENCE OF ORAL CANCER IN SOCIOECONOMIC STATUS

SOCIO-ECONOMIC STATUS			
		Frequency	Percent
	Low	26	86.7
	Middle	4	13.3
	Total	30	100.0



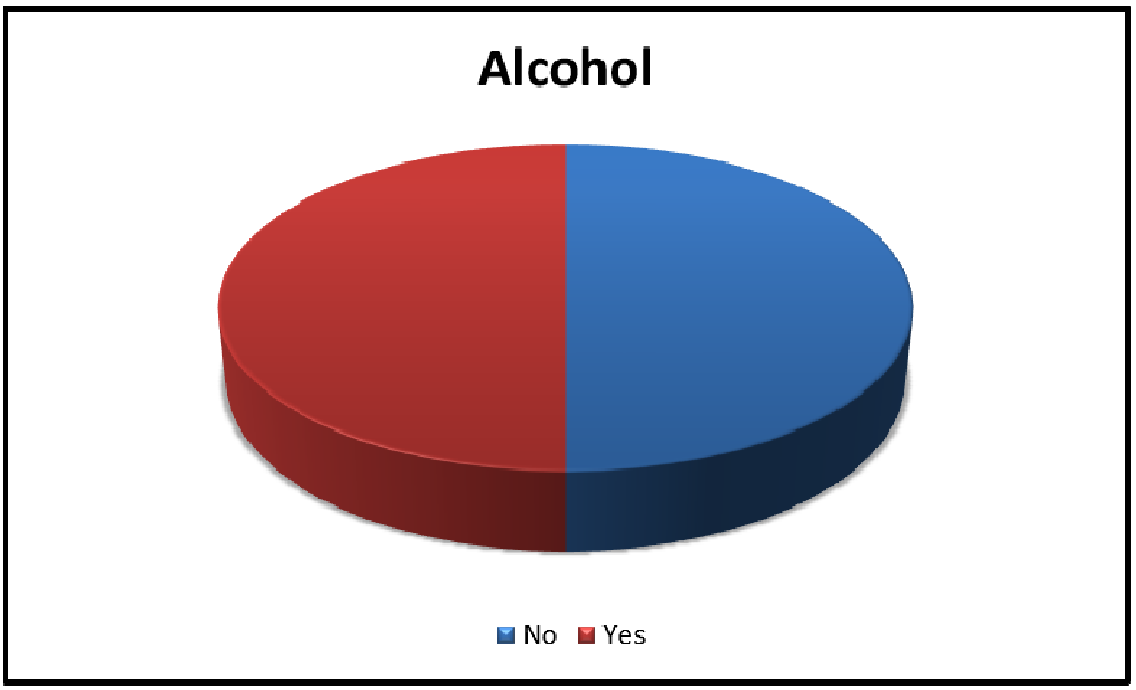
Majority of oral cancer patients in this study groups belong to low socio-economic group

PREDISPOSING FACTORS FOR ORAL CANCER

ALCOHOLISM

ALCOHOL

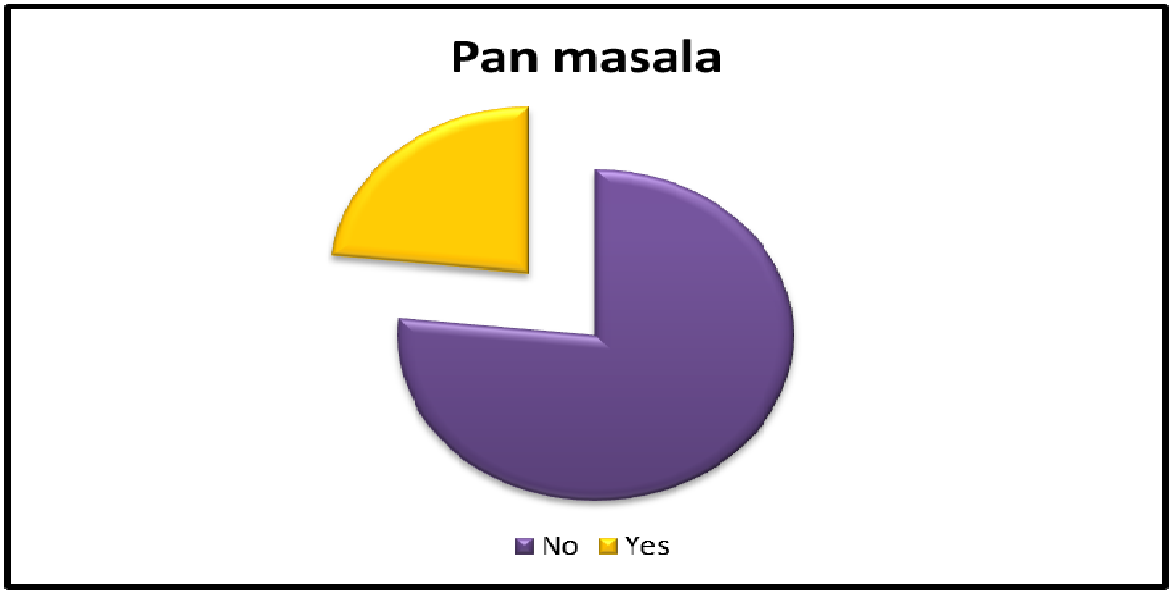
		Frequency	Percent
Valid	No	15	50.0
	Yes	15	50.0
	Total	30	100.0



Out of 30 patient in this study groups 13 are male and 17 are female and all the male are alcoholic with 2 female total 15 are alcoholic

PAN CHEWING

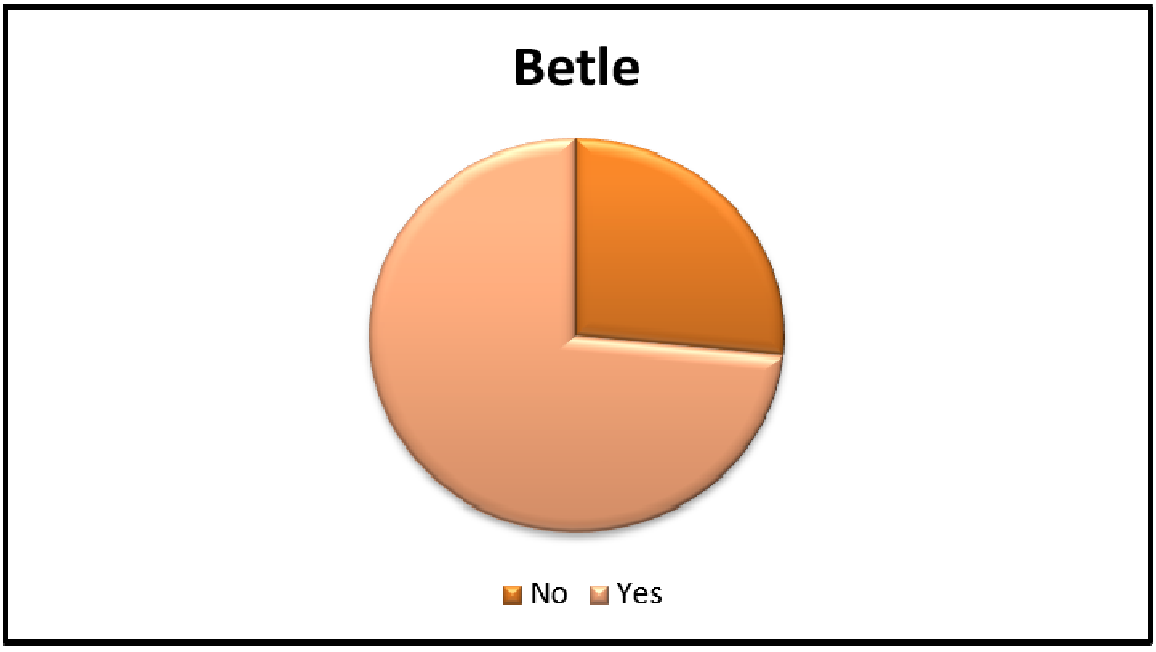
PAN			
		Frequency	Percent
Valid	No	23	76.7
	Yes	7	23.3
	Total	30	100.0



Out of 30 patient in this study groups 7 are pan masala chewer with 23% of the patient

BETEL NUT CHEWER

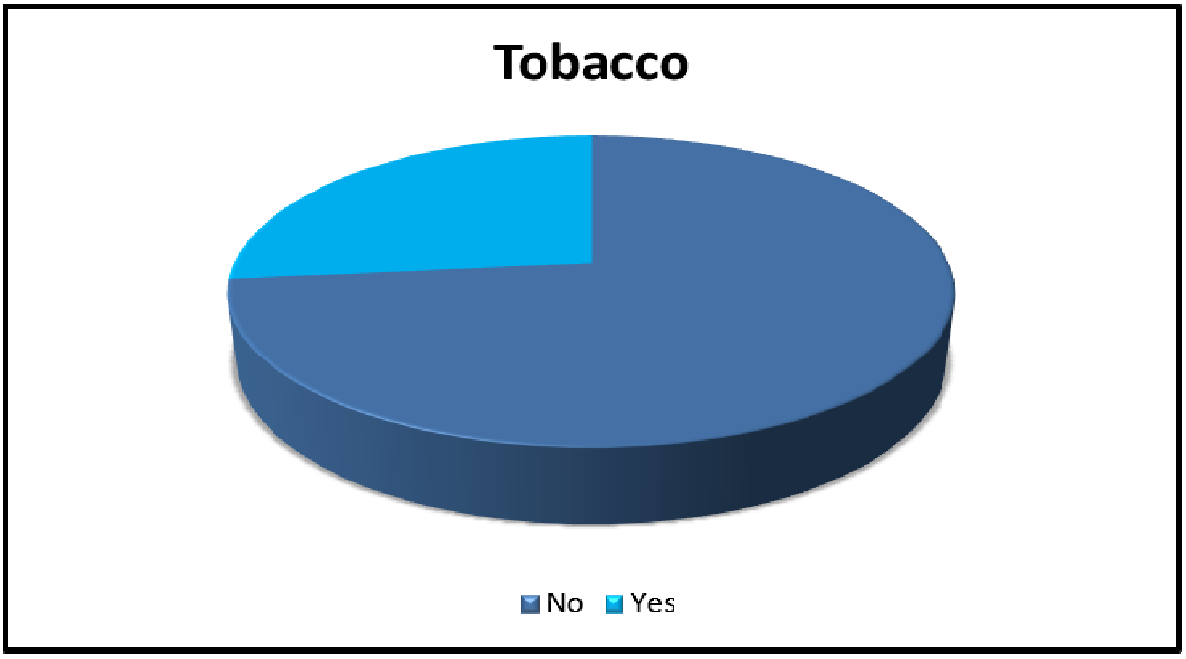
BETEL NUT CHEWER			
		Frequency	Percent
Valid	No	8	26.7
	Yes	22	73.3
	Total	30	100.0



Majority of the patient both male and female belong to this group are betel nut chewer of 30 patient 22 are betel nut chewer with 73 % of the patient

TOBACCO CHEWER

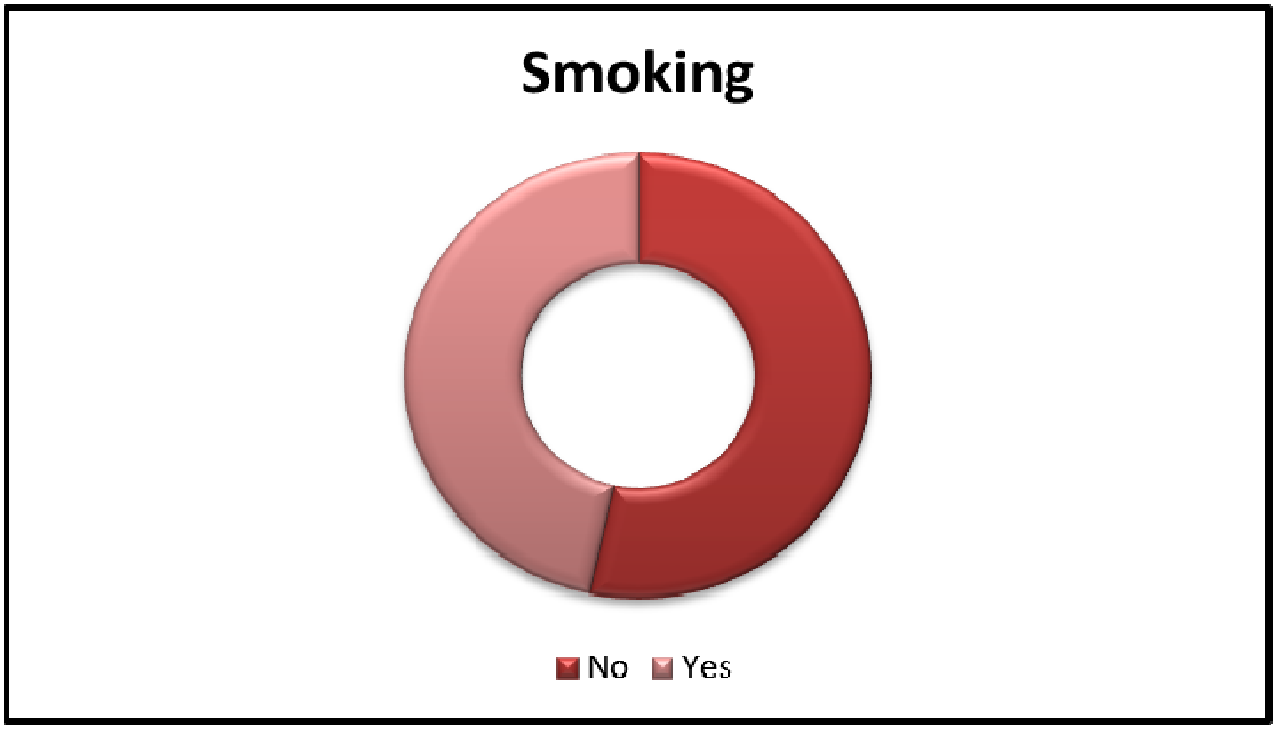
TOBACCO CHEWER			
		Frequency	Percent
Valid	No	22	73.3
	Yes	8	26.7
	Total	30	100.0



Out of 30 patient in this study groups 8 are tobacco chewer involving 26% of the patient

TOBACCO SMOKER

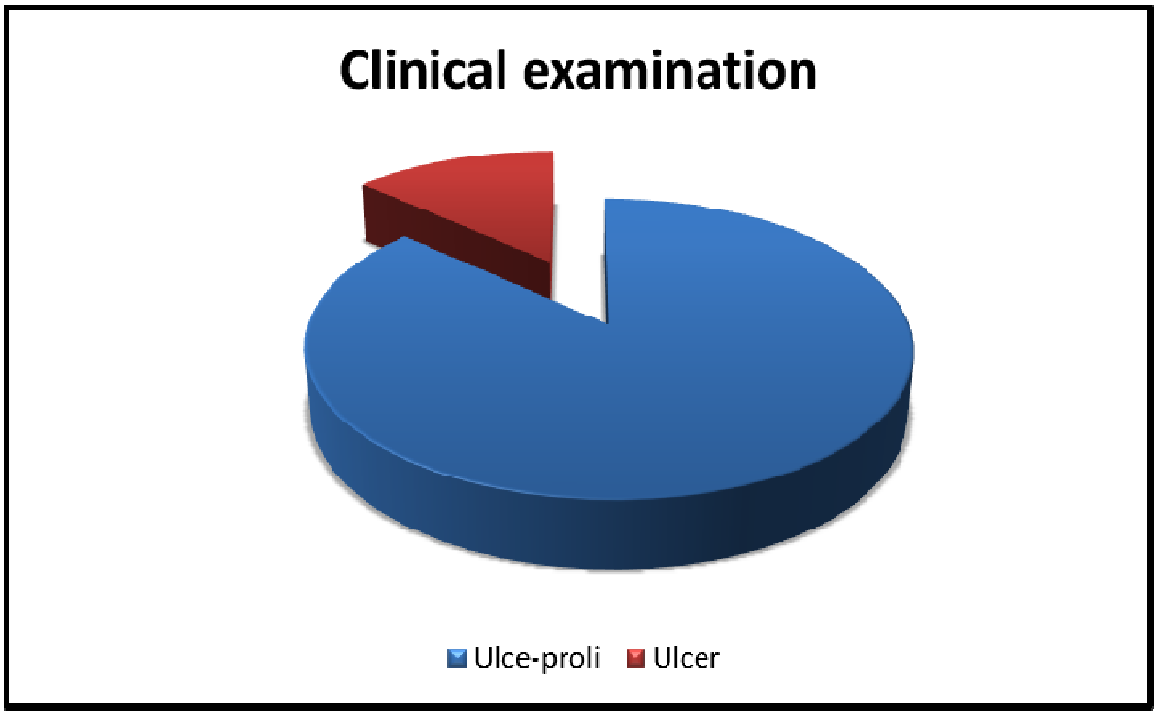
SMOKER			
		Frequency	Percent
Valid	No	16	53.3
	Yes	14	46.7
	Total	30	100.0



All the male in this group are smoker with 1 female involving 46% of the patient.

MODE OF PRESENTATION OF ORAL CAVITY CANCER

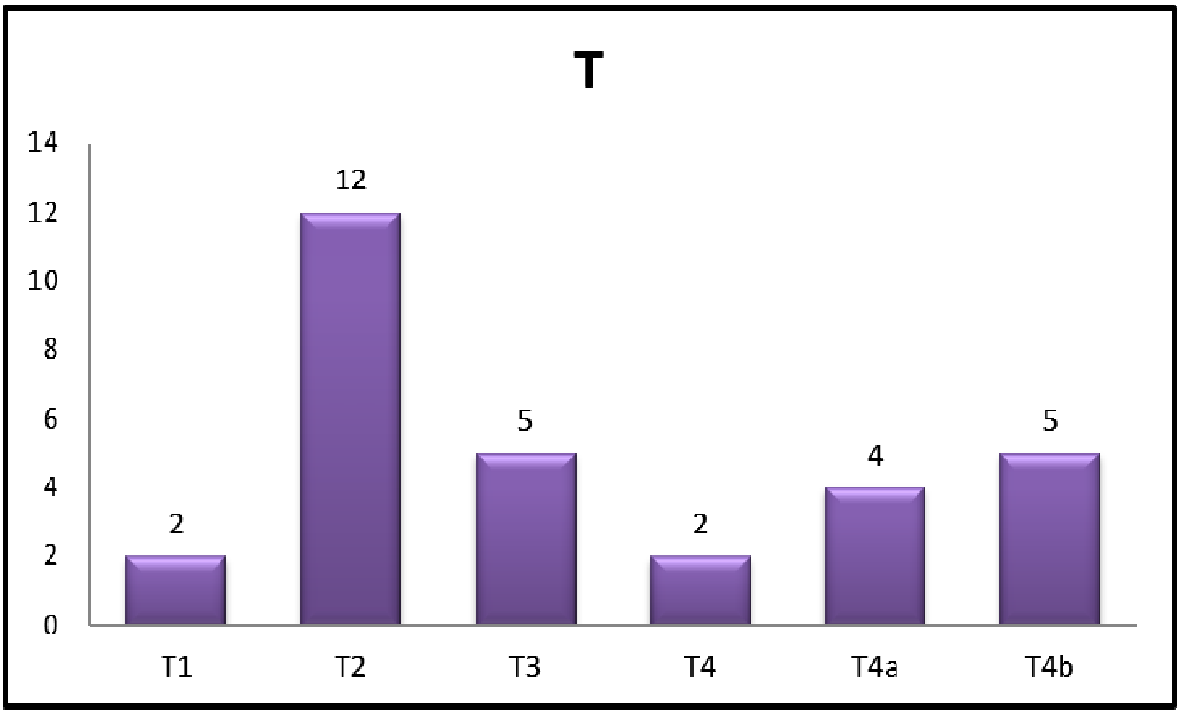
CLINICAL PRESENTATION			
		Frequency	Percent
ulcero	proliferative	26	86.7
	Ulcer	4	13.3
	Total	30	100.0



Majority of the patient in this study groups present with ulceroproliferative growth of oral malignancy covering 86% of the patient

DISTRIBUTION OF PATIENTS ACCORDING TO T STAGE

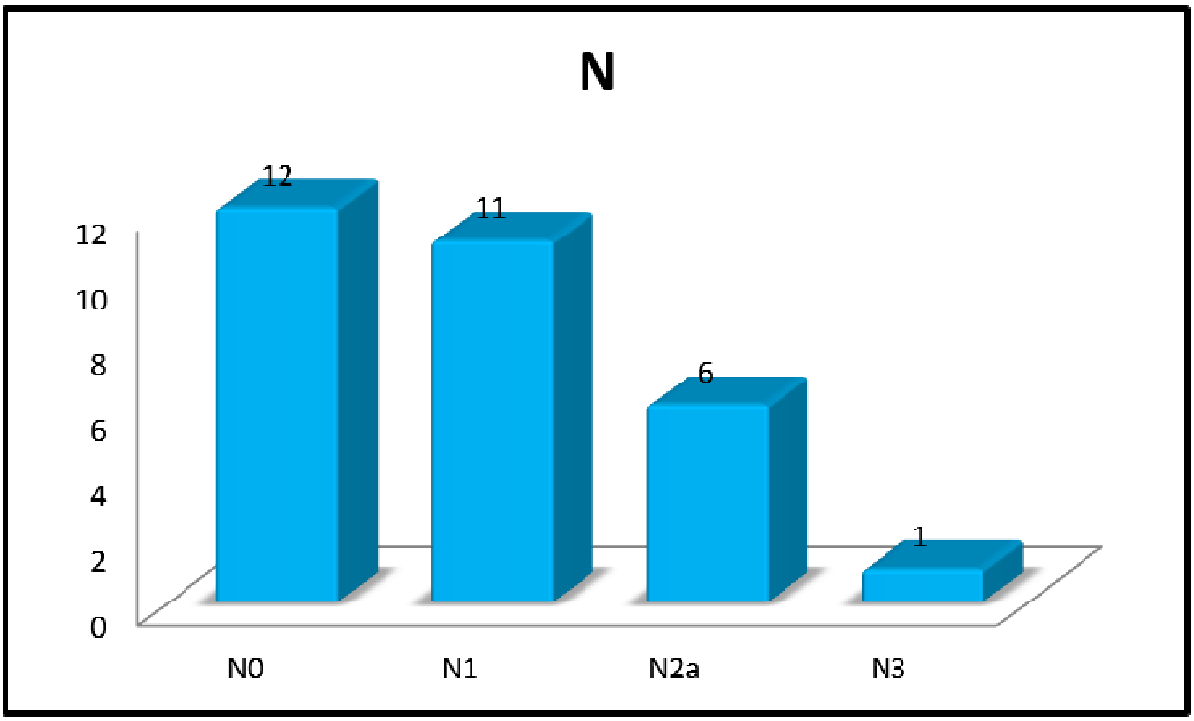
T			
		Frequency	Percent
Valid	T1	2	6.7
	T2	12	40.0
	T3	5	16.7
	T4	2	6.7
	T4a	4	13.3
	T4b	5	16.7
	Total	30	100.0



Majority of the patient in this study groups presenting in the T2 stage size of 2 to 4cm that is 12 of 30 patient with 40 % of the patient

DISTRIBUTION OF PATIENTS ACCORDING TO NODAL STAGE

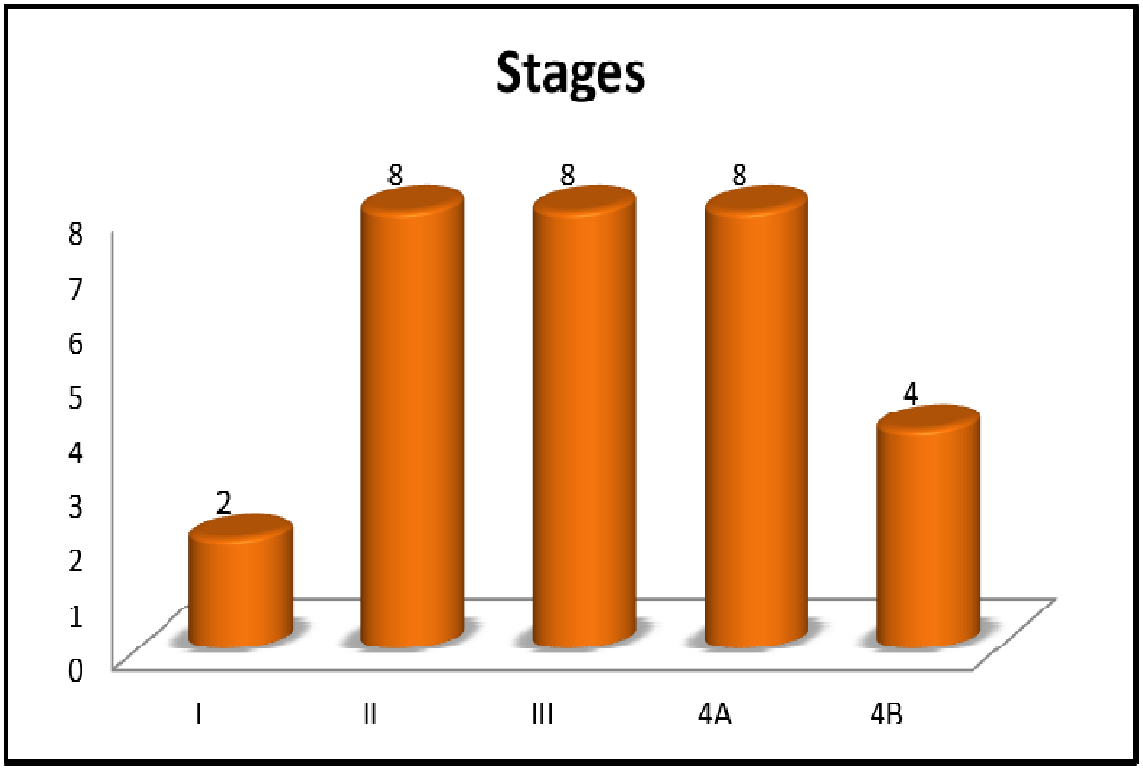
N			
		Frequency	Percent
Valid	N0	12	40.0
	N1	11	36.7
	N2a	6	20.0
	N3	1	3.3
	Total	30	100.0



Out of 30 patient in this study groups 12 patient 40% presents with N0 no significant cervical lymphnode stage and 11 patient 36% presents with N1 level 1b node

DISTRIBUTION OF PATIENTS ACCORDING TO TNM STAGING

STAGE			
		Frequency	Percent
	I	2	6.7
	II	8	26.7
	III	8	26.7
	IVA	8	26.7
	IVB	4	13.3
	Total	30	100.0

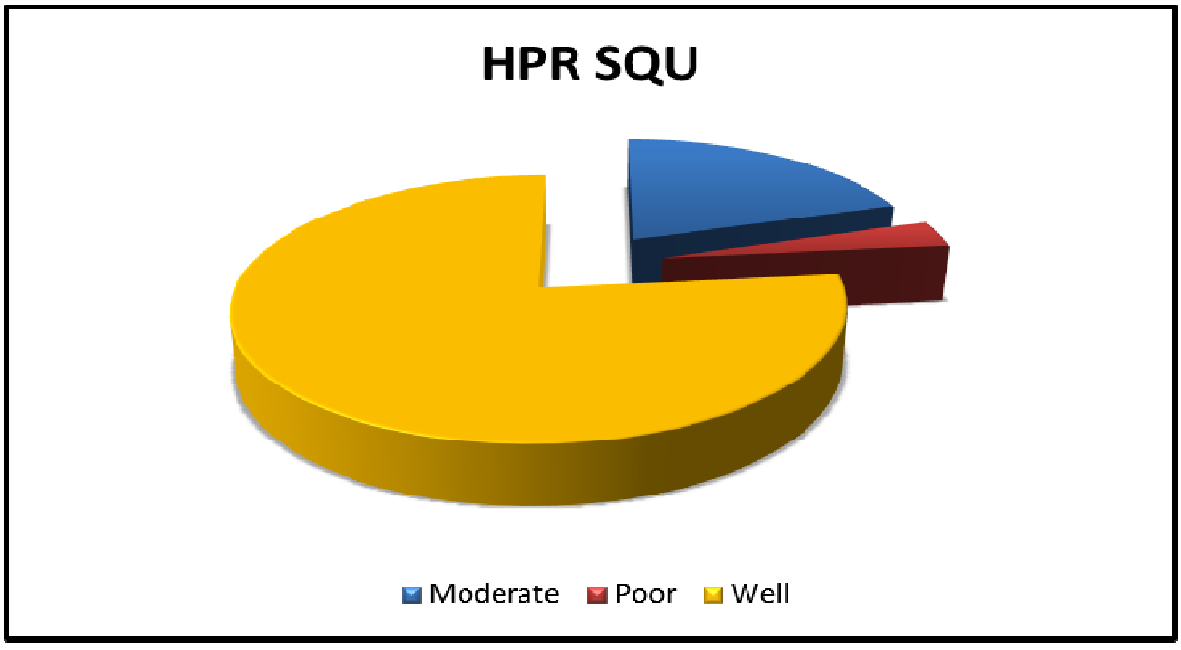


Majority of the patient reported to us were in stage lll and lV

DISTRIBUTION OF PATIENTS ACCORDING TO HISTOPATHOLOGICAL TYPE (SQUAMOUS CELL CARCINOMA)

HPE SQU

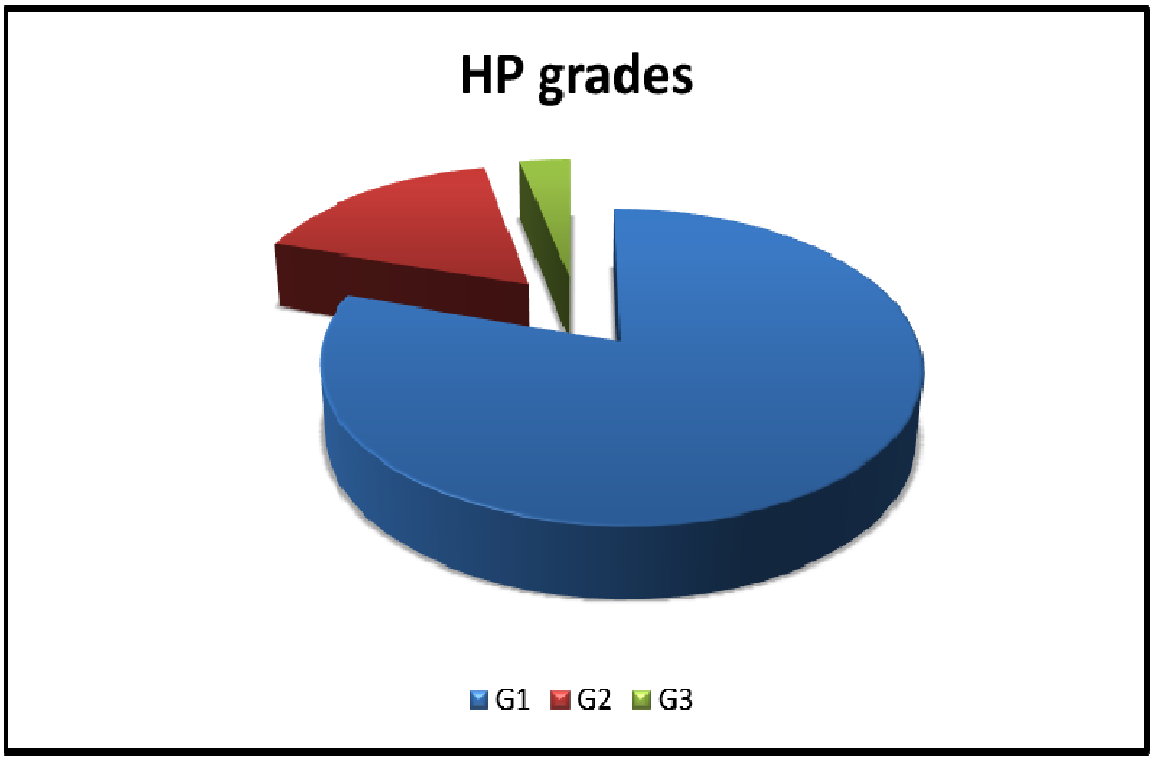
		Frequency	Percent
Valid	Moderate	6	20.0
	Poor	1	3.3
	Well	23	76.7
	Total	30	100.0



Well differentiated squamous cell carcinoma was the major histopathological type

DISTRIBUTION OF PATIENTS ACCORDING TOHISTOPATHOLOGICAL GRADING

HP GRAD			
		Frequency	Percent
Valid	G1	24	80.0
	G2	5	16.7
	G3	1	3.3
	Total	30	100.0

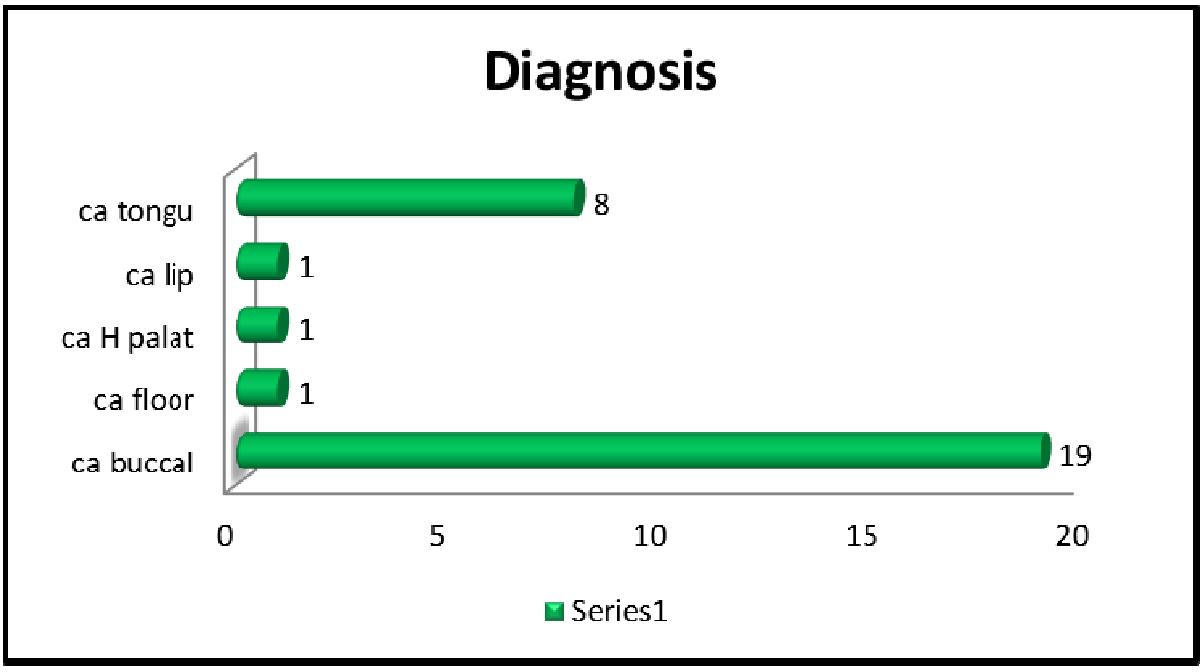


Majority of the patient in this study groups are in Grade G1 (well differentiated squamous cell carcinoma)

INCIDENCE OF ORAL CAVITY CANCER ACCORDING TOANATOMICAL AREA

SITE OF ORAL CAVITY CANCER

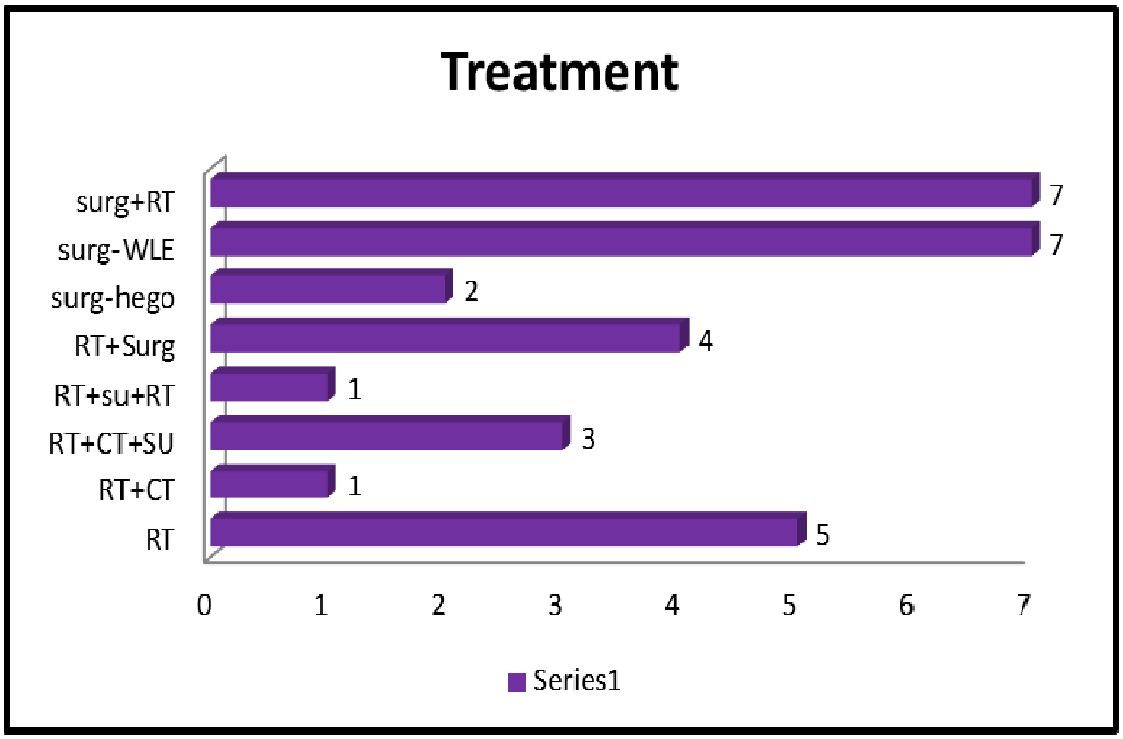
		Frequency	Percent
	ca buccal	19	63.3
	ca floor	1	3.3
	ca H palat	1	3.3
	ca lip	1	3.3
	ca tongu	8	26.7
	Total	30	100.0



Buccal mucosa was the most common site of oral cancer reported in 63% and Tongue was the next common site 26%

TREATMENT OUTCOME IN ORAL CAVITY CANCER

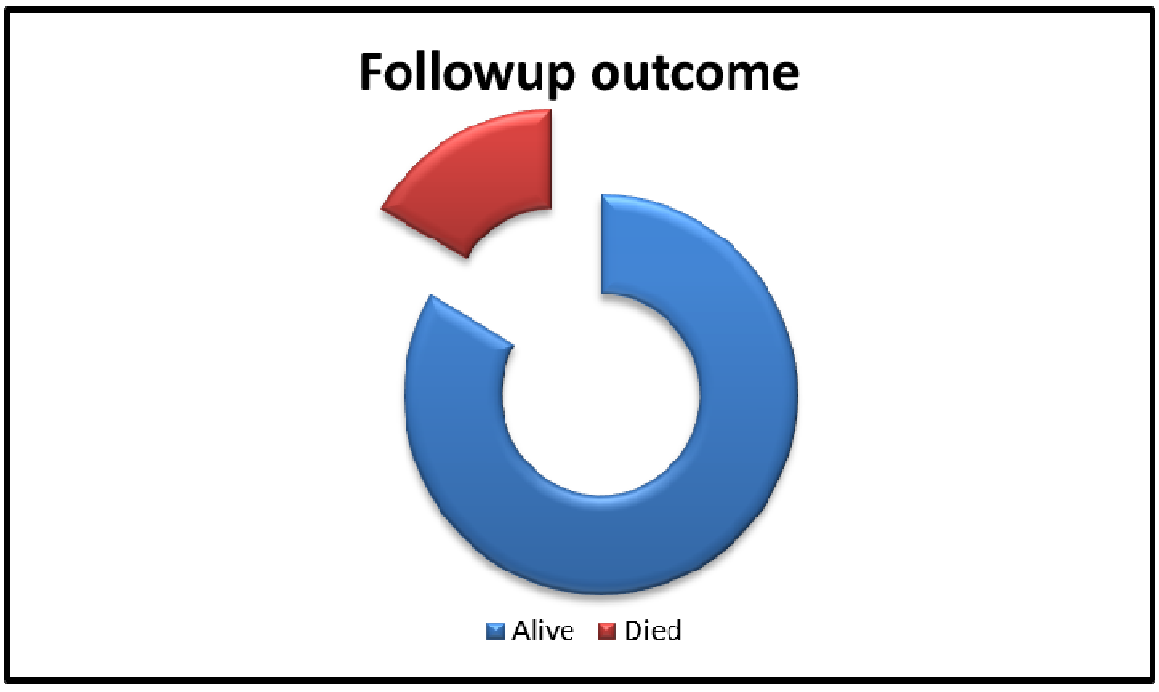
TREATMENT MOTALITY			
		Frequency	Percent
	RT	5	16.7
	RT+CT	1	3.3
	RT+CT+SU	3	10.0
	RT+su+RT	1	3.3
	RT+Surg	4	13.3
	surg-hego	2	6.7
	surg-WLE	7	23.3
	surg+RT	7	23.3
	Total	30	100.0



Primary Radiotherapy was given to 5 patient most of them in stage lll and lV Primary surgery was done for majority of patients in stage l & ll

MORTALITY OF ORAL CANCER IN THIS STUDY GROUP

MORTALITY			
		Frequency	Percent
	Alive	25	83.3
	Died	5	16.7
	Total	30	100.0



Out of 30 patient 5 died which is 16% of the patients within 6 month follow up all came in stage lV advanced oral malignancy

DISCUSSION

DISCUSSION

An analysis of the incidence, predisposing factors, premalignant conditions, clinical features, type of growth, histological types, stage of presentation and treatment modalities carried out for oral cancers in our hospital for the period from October 2016 to September 2017 are discussed.

EPIDEMIOLOGICAL ANALYSIS

According to the National Cancer Registry Programme (NCRP) - ICMR Survey shows that Oral Cavity cancer occupies the most common carcinoma in male (19.4%), is followed by hypopharynx and esophagus. In females Cervix Uterus is followed by Breast and oral cancer (38.7%).

The reference in Indian Medical Literature regarding the preponderance of oral cancer in India suggests its strong association with habit of chewing betel nut, tobacco, slacked lime and smoking habit

Chennai-statistics shows that the leading cancer site in male is oral cavity (9.9%) and in female Cervix Uterus (32.2%) among the top ten cancers.

In JIPMER-oral cavity forms the most common cancer in male (16.6%) and Cervix Uterus (55.1%) forms the most common cancer in female among the top ten cancers .

In my study the peak incidence of oral cavity cancer is between45 and 65 Years.

According to the National Cancer Institute Programme – USA, the mean age of diagnosis is 65 years and more than 50% occurs above the age of 60 Years.

The disparity in age incidence is mainly due to the early tobacco and betel leaf chewing habit in Indian patients.

My study reveals that chewing tobacco and betel nut present in 84.2%, and of them 80% have started it before the age of 25 Years. Young age chewing habit and the number of years of usage are the reasons for oral cancer at earlier ages.

Recently, it has been found out that increased incidence of oral cavity cancers detected at earlier ages probably due to the habit of chewing and smoking among the students evidenced by oral Cavity Cancer under the age of 35 Years.

According to the centers for disease control and prevention 2015, U.S.A. - Tobacco usage was increased among middle and high school students.

MALE - FEMALE RATIO

Male - female ratio in my study is 1 : 1.5

It is believed that female sex incidence increase is due to the greater use of Tobacco chewing, betel nut in rural and increase alcohol intake in rural and urban by female in India.

Female cases were reported higher in Greece.

Snuff dripping and increased incidence of oral cancer among women in Southern United States.

SOCIO-ECONOMIC STATUS

In my study majority of patients with oral cancers (86.7%) are from low socio-economic status.

The reasons may be due to multiple factors like

a) Poor Nutritional Status.

b) Bad oral hygiene.

c) Social customs.

d) Addiction to tobacco, Betel leaf and alcohol.

e) Lack of health awareness.

ETIOLOGICAL FACTORS

Major etiological factor is chewing betel nut and tobacco in more than a decade either continuously (or) intermittently.

Information from the patients regarding the duration of addiction for chewing shows that about 73.3% of patients have been chewing tobacco for more than a decade either continuously (or) Intermittently.

Tobaccos which is smoked as beedi, cigarette (or) pipe has been found in 73% of patients.

In our study alcohol usage is found in 50% Alcohol has been incriminated as one of the causes for oral cancer.

Alcohol has indirect role. Almost all heavy drinkers are also heavy smokers.

Alcohol in turn increases the absorption of tobacco and increases nutritional deficiency.

These factors make squamous cells more susceptible for conversion into cancer cells.

Dental lesions such as sharp tooth and artificial denture produce constant trauma has been associated with Carcinoma of Buccal mucosa.

Role of poor Nutrition in oral cancer has been thought as a significant factor. B-Complex deficiency and sideropenia have been observed in Oral Cancer patients.

In my study signs of Chronic Nutritional deficiency like angular chelitis, atrophic tongue and glossitis are observed in 1.7%.

ANATOMICAL LOCATION

In my study Buccal mucosa – constitutes 63.3% of oral cavity cancer.

Increased incidence of buccal mucosa carcinoma is also found in Aringar Anna Cancer Institute, Kancheepuram.

Tongue is the 2nd most common site (26.7%), next to buccal mucosa, Disparity in this involvement is mainly due to the habitual tobacco and betal chewers to keep the Quid in bucco gingival sulcus.

Reverse smoking (Chutta inside the mouth) is associated with cancer of the palate found in Andhra Pradesh. Next to tongue, palate, floor Lip, occupies about 3.3% in my study.

Lower Lip exposure to radiation is more when compared to upper lip is the reason for higher incidence of Lower lip cancer than upper lip.

CLINICAL FEATURES

Out of 30 patients majority of them reported with ulcer or ulcero proliferative growth in the mouth.

Tumors of the oral cavity often ulcerate; this is probably due to friction of the mucous membrane during eating and partly due to Infection.

Initially the lesions are painless, but once disease advances patients reported with pain.

Other symptoms such as excessive salivation, difficulty in chewing, dysphonia, dysphagia and ankyloglossia are present.

Trismus is a bad sign as it signifies extensive infiltration by an endophytic lesion.

Patients with advanced lesions reported with fungating growth, orocutaneous fistula and with extensive Jaw destruction.

PREMALIGNANT LESIONS

Premalignant lesions account for 95% of oral cancers. In my study majority of the patients had Leukoplakia followed by Submucosal fibrosis , Erythroplakia, Combined Erythro Leukoplakia and Candidiasis.

Oral submucosal fibrosis is due to a component of areca-catcha in Betelnut which affects the collagen synthesis. It has been predominantly found in East India, Srilanka and South East Asia.

HISTOPATHOLOGICAL VARIETY

In my study case taken up for study cases are Squamous cell carcinoma of oral malignancy and which is the most common variety

National Cancer Data Base USA reveals

Squamous - 86.3%

Adeno - 5.9%

Verrucous - 2.0%

Kaposis - 1.5%

Out of the squamous cell carcinoma HP GRADING reported in my study 80% are G1 well differentiated, 16.7% are G2 moderately differentiated, and 3.3% are G3 poorly differentiated.

STAGING

In My study about 40% presented with N0 neck (Stage I & II) 60% presented to us with N1, N2, N3 Neck (Stage III & IV)

Compared to the study of M.D. Anderson Cancer Centre

72% Patients presented with No neck

28% Patients presented with N1, N2, N3 Neck

National Cancer Data Base USA

55% Patients presented with No neck

35% Patients presented with N1, N2, N3 Neck

Even though oral cancers are easily accessible for physical examination and biopsy, majority presented to us in later stages.

The reasons derived from this study are,

1) Majority of them are initially reviewed by general practioners and dentists and diagnosed as apthous ulcer and fungal infections, treated with antibiotics, antifungal agents and mouth washes and referred to higher centers at later stages.
2) Oral Cancer ulcers are painless to start with, by the time patient presented with pain the stage of the disease advances.
3) Some people are elderly and frail so there is delay in effort to visit the dentist (or) doctor.

I did not encounter a single case with distant Metastasis (IV C), probably, secondaries will start manifesting after adequate local treatment and long term follow up.

The mean follow up period in my study is short.

Majority presented with submental, sub mandibular and upper deep cervical nodes (Ib, II).

Majority of patients with Nodal metastasis are between 45 and 55 Yrs of age.

MANAGEMENT OF ORAL CAVITY CANCER

Out of 30 patients

7 patients under went Wide Local Excision(WLE)only

2 patient underwent Hemiglossectomy,

7 patient underwent surgery followed by Radiotherapy,

4 patient underwent Radiotherapy followed by surgery,

3 patient underwent Radiotherapy and Chemotherapy followed by surgery,

1 patient underwent neoadjuvant Radiotherapy and surgery,

1 patient underwent only Radiotherapy and Chemotherapy,

5 patient underwent only Radiotherapy.

The main reasons for this low percentage of patients who underwent surgeryare.

1) Majority of our patients at the time of presentation were clinically inoperable (Late presentation).
2) Some patients were not willing to accept the option of major surgical procedure.
3) Poor Nutritional status / Advanced disease of the patients preclude surgical option.
4) Some patients had co-morbid conditions and anaesthetically not fit for major surgical procedure and reconstruction
5) In advanced lesions treated with surgery alone has got higher recurrence rate, poor outcome, hence surgery not advised.

SURGICAL PROCEDURES CLASSIFIED INTO 4 GROUPS

1. Surgery of the primary tumor Wide Local Excision(WLE)
2. Surgery of the primary tumor with Mandibulectomy
3. Surgery of the primary tumor with Elective Neck dissection.
4. Surgery of the primary tumor with neck dissection with Mandibulectomy (Composite resection).

GROUP I

8patients reported in stage I &Stage II, disease without Nodal Involvement / Mandibular Involvement are subjected to wide excision with tumor free Margin of 1 cm all around and depth of 0.5 cm &3 dimensional soft tissue clearance accompanied by primary closure /partial / full thickness skin graft / Locally advanced flap done.

GROUP II

4 patients in stage III & IV reported with mandibular involvement & neck nodes are treated with tumor clearance and Hemi Mandibulectomy.

Reconstruction with

1. Pectoralis major osteomyocutaneous flap with 5th rib. For lining & cover with either delto pectoral flap or forehead flap
2. Free 5th rib for mandible, pectoralis major myocutaneous flap for lining and cover with either delto pectoral flap or forehead flap
3. Forehead flap for both lining and cover for smaller lesions.
4. Bipaddle pectoralis major myocutaneous flap for both lining and cover.

In the above situations mandibular defect closed with wiring.

For Nodal disease primary RT are given, because of co-morbid Illness neck dissection cannot be done.

GROUP III

1 patients in stage II had Wide Local Excision along with elective neck dissection.

GROUP IV

10 patients in stage III & IV (N1, N2) disease either before or after Radiotherapy had either supraomohyoid Neck dissection (or) composite resection and reconstruction with pectoralis major myocutaneous flap (PMMC) for lining and cover with either delto pectoral or forehead flap.

RADIOTHERAPY

Radiotherapy is given in 2 forms either primary radiotherapy (or) Adjuvant radiotherapy.

In my study primary radiotherapy is given to majority of the patients in stage III & Stage IV.

In our institution external beam radiotherapy is given to the primary tumor area and to the neck in 6000 cGy for 6 weeks with 200 cGy per day for5 days in a week.

Advancement in the radiotherapy in the form hyper fraction RT / IMRT(Intensity modulated radiotherapy) are available in Regional cancer centers.

Adjuvant RT to the primary and Neck were given to 7 patients, those who had positive margins and doubtful clearance during surgery.

COMPLICATIONS

Out of 30 patients,

4 patients had wound infection,

1 developed orocutaneous fistula and

1patients had flap necrosis.

Other patients had no specific complaints. Wound infection treated with higher antibiotics. Necrosed area excised and skin graft applied.

FOLLOW UP

Follow up was advised at

Monthly intervals for 1st year and

Once in 3months for the 2nd year.

But my study follow up is only for a short interval follow up of only 6 month.

During the follow up period local recurrence, Nodal recurrence were looked for but in my short interval follow up no such complains was recorded.

MORTALITY

Out 30 patient in my study 5 patient (16.7%) died
All 5 patient came to our institute in advance oral cancer

1patient carcinoma palate stage IVb on Radiotherapy died within 4 month of study period,

3patient carcinoma tongue first and second one at stage IVa on Radiotherapy died within 3 month and third one at stage IVa on post surgery radiotherapy died within 2month of study period ,

1 patient carcinoma buccal at stage IVb completed radiotherapy and chemotherapy and surgery died within 2 month of my study period.

And in all 5 cases case of death record as oral malignancy and it's complication lead to cardiovascular respiratory arrest.

SUMMARY

SUMMARY

- Buccal mucosa was the most common site of oral cavity cancer (63.3%) with Tongue being the second most common site (26.7%).
- Peak age of incidence is 45 – 65 yrs.
- Male to Female ratio in my study group 1 : 1.5 as increasing female dominance in oral malignancy due to increased betel nut and tobacco chewing and alcohol consumption by women
- Habit of pan chewer, Betel leaf, tobacco with slaked lime were the most common etiological factor.
- Low socio economic status more prone for oral cavity cancer.
- Majority had presented with ulceroproliferative lesion (86.7%)
- 76.7% of oral cancers were G1 well differentiated Squamous cell origin
- 66.7% of Patients reported in advanced stages (Stage III, IVa, IVb)
- No recorded case of distant metastasis (Stage IV-C)
- Out of 30 patients,

    7 patients underwent Wide Local Excision(WLE)only

    2 patient underwent Hemiglossectomy,

    7 patient underwent surgery followed by Radiotherapy,

    4 patient underwent Radiotherapy followed by surgery,

    3 patient underwent Radiotherapy and Chemotherapy followed by surgery,

    1 patient underwent neoadjuvant Radiotherapy and surgery,

    1 patient underwent only Radiotherapy and Chemotherapy

    5 patient underwent only Radiotherapy.

• Post operative complications

4 patients had wound infection,

1developedorocutaneous fistula

1patients had flap necrosis.

and all treated

• Mortality was encountered

Out of 30 patient in my study 5 patient (16.7%) died

All 5 patient came to our institute in advance oral cancer

1patient carcinoma palate stage IVb on Radiotherapy died within 4 month of study period,

3 Patient carcinoma tongue first and second one at stage IVa on Radiotherapy died within 3 month and third one at stage IVa on post surgery radiotherapy died within 2month of study period ,

1 Patient carcinoma buccal at stage IVb complete radiotherapy and chemotherapy and surgery died within 2 month of my study period

CONCLUSION

CONCLUSION

Oral Cancer is a national problem.

Oral Cancer remains a challenge as majority of the patients reported in advanced stage.

Micrographic excision and alternative forms of therapy such as Cryo, Electro, Chemo & Photo dynamic therapy for smaller lesions and wide excision along with advanced reconstructive procedure such as Free Flap –Microvascular surgery has made surgery as the anchor role in management.

With the invent of Radio sensitisers and Radio protectors, the radiotherapy as a modality of treatment has to be considered as side effects are low.

Role of adjuvant chemo and concomitant role of chemo & radiotherapy are effective for advanced oral malignancy.

Role of immunological agents such as Gefitinib and erlotinib and cetuximab are under use.

Effective multimodality management has come into use with Radiotherapy and surgery and chemotherapy has reduced the morbidity of oral cancers.

Future developments in nanotechnology and directed therapies will alter the diagnosis and treatment of oral cancers relative to contemporary treatment modalities.

The best way to cure is by prevention. Screening of high risk group that is those who are in the Habit of pan, betel nut & tobacco chewing in general population, should be done.

Dental surgeons and general practioners have a vital role with early detection of oral lesions and referral to higher centers for proper management.

Health education through mass media and posters in Health centers and dispensaries on the ill effects of Tobacco / Alcohol / Betel nut in a large scale by Government and Non-Government organizations will create awareness and help in prevention.

Younger population is to be educated by mass media with a ban on advertisement of Tobacco, Alcohol and screening camps will also be useful.

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APPENDIX AND ANNEXURES

INFORMATION SHEET

TITLE : "CLINICO-PATHOLOGICAL STUDY ON ORAL MALIGNANCY in RGGGH"

Name of Investigator : **Dr.SENTHIL.V** Name of Participant :

Purpose of Research : To correlate all clinical parameter like gender, age, site, habits with different grades of squamous cell carcinoma and to predict the tumour biology

Study Design : Prospective & Retrospective Observational Study

Study Procedures : Patient will be subjected to routine investigations ,complete hemogram, Xray, Usg neck, CECT Neck , VDL or IDL scopy, biopsy of lesion, management- radiation/surgery Procedure as indicated and the data analysed

Possible Risks : No risks to the patient

Possible benefits

To patient : A better understanding of their problem so has to devise a plan of management which suits their needs.

To doctor & to other people : If this study gives positive results, it can help determine the early identification, most effective diagnostic and treatment protocol for patients with oral malignancy. This will help in providing better and complete treatment to other patients in future.

Confidentiality of the information obtained from you : The privacy of the patients in the research will be maintained throughout the study. In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared

Can you decide to stop participating in the study : Taking part in this study is voluntary. You are free to decide whether to participate in this study or to withdraw at any time

How will your decision to not participate in the study affect you : Your decision will not result in any loss of benefits to which you are otherwise entitled.

Signature of Investigator Signature of Participant

Date :

Place :

PATIENT CONSENT FORM

Study Detail : ***"CLINICO-PATHOLOGICAL STUDY ON ORAL MALIGNANCY* in RGGGH"**

Study Centre : Rajiv Gandhi Government General Hospital, Chennai.

Patient's Name :

Patient's Age :

In Patient Number :

Patient may check (☑) these boxes

I confirm that I have understood the purpose of procedure for the above study. I have the opportunity to ask question and all my questions and doubts have been answered to my complete satisfaction.

I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving reason, without my legal rights being affected.

I understand that sponsor of the clinical study, others working on the sponsor's behalf, the Ethics committee and the regulatory authorities will not need my permission to look at my health records, both in respect of current study and any further research that may be conducted in relation to it, even if I withdraw from the study I agree to this access. However, I understand that my identity will not be revealed in any information released to third parties or published, unless as required under the law. I agree not to restrict the use of any data or results that arise from this study.

I agree to take part in the above study and to comply with the instructions given during the study and faithfully cooperate with the study team and to immediately inform the study staff if I suffer from any deterioration in my health or well being or any unexpected or unusual symptoms.

I hereby consent to participate in this study

I hereby give permission to undergo complete clinical examination and diagnostic tests including hematological, biochemical, radiological tests and to undergo treatment

Signature/thumb impression

Patient's Name and Address:

Signature of Investigator

Study Investigator's Name: **Dr. SENTHIL.V,**

PATIENT PROFORMA

PATIENT DETAILS:

Name: Age: Sex:

IP No. :

ON ADMISSION:

MAIN COMPLAINTS:

MODE OF ONSET:

HABITS :

ASSOCIATED COMPLAINTS :

CLINICAL EXAMINATION:

Pulse : BP :

RR : Temp :

Pallor : Icterus :

CVS : RS :

P/A : CNS:

VDL/IDL SCOPY:

ENT EXAMINATION :

ORAL EXAMINATION:

INVESTIGATIONS :

CBC/RFT				
TC				
DC				
Hb %				
PCV				
RBC				
Platelets				
Glucose				
Urea				
Creatinine				
Na^+/K^+				

LFT				
Total Bili				
Dir. Bili				
SGOT				
SGPT				
Total Protein				
Sr. Albumin				

CXR :

Neck Xray :

USG neck:

CECT /MRIneck :

HPE REPORT OF BIOPSY:

TREATMENT

RADIATION OR CHEMOTHEARHY OR BOTHMANAGEMENT WITH FOLLOW UP

OPERATIVE MANAGEMENT :

Indication :

Intra Op findings :

Post op Period :

FOLLOW UP :

MASTER CHART

Guide to Master Chart

S-ECO	–	Socio-economic status
PE MAL	–	Pre malignant condition
ALOH	–	Alcohol
PAN	–	Pan masala chewer
BETLE	–	Betel nut chewer
TOBAC	–	Tobacco chewer
SMOK	–	Smoker
CLI-EXA	–	Clinical Examination
Ulce-proli	–	ulcero proliferative growth
STGE	–	Stage
HPE SQU	-	Histopathological Examination (Squamous cell carcinoma)
Well diff	–	well differentiated
Mod diff	–	moderately differentiated
HP GR	–	Histopathological Grading
TRE MEN	–	Treatment
RT	–	Radiotherapy
Surg	–	surgery
CT	–	Chemotherapy
SU	–	surgery
WLE	–	Wide Local Excision
hego	-	Hemeglossectomy
Comp -ali	–	Treatment course completed and patient is alive
Part-aliv	–	partially course and patient is alive

SNO	IP NO	NAME	AGE	SEX	S-ECO	PE MA	ALOH	PAN	BETLE	TOBAC	SMOK	CLI-EXA	SIZE T	NODE N	STG	HPE SQU	HP GR	DIAGNOS	TRE MEN	FOL UP
1	1291	arpudamani	62	F	low	no	no	yes	no	no	no	ulce-proli	6×3 T4a	1b 2×2 N1	IVa	mod-diff	G2	ca floor	RT+Surg	comp-aliv
2	1154	devi	45	F	low	no	no	no	yes	no	no	ulce-proli	6×4 T4a	N0	IVa	wel-diff	G1	ca buccal	RT	comp-aliv
3	1014	raj	41	M	low	no	yes	yes	no	yes	yes	ulce-proli	5×4 T4a	N0	IVa	wel-diff	G1	ca tongu	RT	died 3mo
4	10121	narayana	50	M	low	no	yes	yes	no	yes	yes	ulce-proli	3×2 T2	N0	II	wel-diff	G1	ca tongu	RT+CT	died 2mo
5	14282	kamatchi	61	F	low	no	no	no	yes	no	no	ulce-proli	3×2 T2	N0	II	wel-diff	G1	ca buccal	RT+Surg	comp-aliv
6	17397	nagalingam	49	M	low	no	yes	no	no	yes	yes	ulce-proli	3×2 T2	1b 2×2 N1	III	wel-diff	G1	ca buccal	surg-WLE	comp-aliv
7	19145	amaravathy	66	F	low	no	no	no	yes	yes	yes	ulce-proli	3×4 T3	1b 2×2 N1	III	wel-diff	G1	ca buccal	surg-WLE	comp-aliv
8	38145	jower	57	M	med	no	yes	no	yes	yes	yes	ulce-proli	5×5 T3	1b 3×2 N1	III	wel-diff	G1	ca H palat	RT	died 4mo
9	47556	srinivasan	60	M	low	no	yes	no	yes	yes	yes	ulce-proli	6×5 T4	1b 6×3 N3	IVb	mod-diff	G2	ca tongu	RT	died 1mo
10	50042	govindharaj	70	M	low	no	yes	no	yes	no	yes	ulcer	5×3 T4b	1b 2×2 N1	IVb	mod-diff	G2	ca tongu	RT	comp-aliv
11	35571	pachyamal	40	F	med	no	no	no	yes	no	no	ulce-proli	2×3 T2	1b 1×1 N1	III	wel-diff	G1	ca tongu	surg+RT	comp-aliv
12	74400	adhilakshmi	57	F	low	no	no	yes	no	yes	no	ulcer	2×1 T1	N0	I	wel-diff	G1	ca buccal	surg-WLE	comp-aliv
13	67423	jayalakshmi	54	F	low	no	no	no	yes	no	no	ulcer	2×3 T4	N0	IVa	wel-diff	G1	ca buccal	surg+RT	comp-aliv
14	80250	nagaposam	65	F	low	no	yes	no	yes	no	no	ulce-proli	2×3 T2	N0	II	wel-diff	G1	ca buccal	surg-WLE	comp-aliv
15	44857	norujahan	50	F	med	no	no	no	yes	no	no	ulce-proli	3×2 T2	N0	II	wel-diff	G1	ca buccal	surg-WLE	comp-aliv
16	92194	pethammal	56	F	low	no	no	no	yes	no	no	ulce-proli	3×3 T2	1b 1×1 N1	III	wel-diff	G1	ca buccal	surg+RT	comp-aliv
17	77385	ramani	62	F	low	no	no	no	yes	no	no	ulce-proli	5×5 T4b	1,2 N2a	IVb	wel-diff	G1	ca buccal	RT+Surg	part-aliv
18	4475	rani	70	F	low	no	yes	no	yes	no	no	ulce-proli	6×5 T4b	1,2 N2a	IVb	wel-diff	G1	ca buccal	RT+su+RT	part-died
19	80203	murugamal	60	F	low	no	no	no	yes	no	no	ulce-proli	5×3 T3	1b 1×1 N1	III	wel-diff	G1	ca buccal	surg+RT	part-aliv
20	86725	kanaga	48	F	med	no	no	yes	no	yes	no	ulce-proli	3×2 T3	1b 1×1 N1	III	mod-diff	G1	ca buccal	surg+RT	part-aliv
21	4464	rajammal	60	F	low	no	no	no	yes	no	no	ulce-proli	6×5 T4a	1b 2×1 N1	IVa	mod-diff	G2	ca buccal	RT+CT+SU	part-aliv
22	83741	karuppan	56	M	low	no	yes	yes	no	no	yes	ulce-proli	3×2 T2	N0	II	por-diff	G3	ca tongu	surg-hego	comp-aliv
23	76541	chinnatambi	62	M	low	no	yes	no	yes	no	yes	ulce-proli	6×4 T3	1,2 N2a	IVa	wel-diff	G1	ca buccal	RT+Surg	comp-aliv
24	72341	marimuthu	54	M	low	no	yes	no	yes	no	yes	ulcer	2×1 T1	N0	I	wel-diff	G1	ca lip	surg-WLE	comp-aliv
25	75843	marryamal	52	F	low	no	no	no	yes	no	no	ulce-proli	3×2 T2	N0	II	wel-diff	G1	ca tongu	surg-hego	comp-aliv
26	81211	arokyadass	48	M	low	no	yes	yes	no	no	yes	ulce-proli	4×3 T2	1b 2×1 N1	III	wel-diff	G1	ca buccal	surg+RT	part-aliv
27	5471	sivaguru	52	M	low	no	yes	no	yes	no	yes	ulce-proli	6×5 T4b	1,2 N2a	IVa	wel-diff	G1	ca buccal	RT+CT+SU	part-aliv
28	78465	ullammal	48	F	low	no	no	no	yes	no	no	ulce-proli	2×3 T2	N0	II	mod-diff	G2	ca buccal	surg+RT	part-aliv
29	81328	rajanathan	54	M	low	no	yes	no	yes	no	yes	ulce-proli	7×6 T4b	1,2 N2a	IVa	wel-diff	G1	ca buccal	RT+CT+SU	part-aliv
30	84376	liganathan	46	M	low	no	yes	no	yes	no	yes	ulce-proli	2×3 T2	N0	II	wel-diff	G1	ca tongu	surg-WLE	comp-aliv